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THE WHEAT AND FLOUR TRADE UNDER FOOD ADMINISTRATION CONTROL: 1917–18

SUMMARY

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THE act authorizing the President to establish agencies for the control of foods and fuels was approved August 10, 1917. Under its provisions the Food Administration was at once given legal standing and began to function as the directing and controlling authority in the food trades of the United States. Sufficient time has now elapsed to permit a review and critical estimate of the activities of the Food Administration, in certain

directions at least. Easily the most important of its problems, and in some respects the most difficult, have been encountered in the regulation of the wheat and flour trade. In this paper an attempt is made to analyze these problems and to discuss the efficacy of the measures adopted to meet them.

I

The Commercial Situation and Price Trend during the Crop Year, 1916–17

In 1913, in 1914, and again in 1915, the United States produced the largest wheat crops ever harvested in this country; the average for the three years was almost 900,000,000 bushels. The average exports of wheat (and flour) for the same years were almost a quarter of a million bushels; the exports for the years 1914–15 and 1915–16 were much the largest recorded during the present century. In striking contrast to these huge crops was the exceedingly disappointing harvest of 1916, which amounted to only 636,318,000 bushels. However, there was a large "carry-over" from the 1915 crop, amounting at the beginning of July, 1916, to 179,174,000 bushels, which, together with the new crop, made possible an export movement of 209,438,795 bushels during the succeeding twelve months.

It is the occurrences of these twelve months to which this paper must first give attention. The facts just recited make it evident that during the first two years of the European war this country had played a large part in the provisioning of western Europe. The neutral nations as well as the entente allies had drawn very heavily upon the United States for wheat and flour, but it had also been possible for them to draw upon the

crops of Australia, Argentine, India, etc. To a lesser extent this was possible also in 1916–17, but the growing scarcity of ocean tonnage caused greater and greater dependence upon nearer sources of supply, as Algeria and North America. The result was an extremely close adjustment of supplies and needs during the year 1916–17; on July 1, 1917, the United States came into the new crop year with a carry-over of only 51,078,000 bushels; — the lowest figure recorded since 1909.

Not only was there a remarkably close adjustment of supplies to needs during the twelve months ending in June, 1917, but there was also, over the greater part of that period, an almost continuously mounting price level for wheat and flour. Only between November, 1916, and early February, 1917, did a net decline occur; after the first week in February there was a sharp upward swing which reached a climax about the middle of May, at a point nearly three times as high as the prices current a twelvemonth before. This peak was not maintained, but the average prices of June and July were well over twice the level of the corresponding months in 1916.

This extraordinary price increase was due to three fairly distinct factors: (1) poor crop prospects and rapidly diminishing wheat and flour stocks in the United States and Canada; (2) uncontrolled, and at times apparently reckless, buying in American markets by the representatives of the allied and neutral countries; (3) the impossibility of drawing upon the reserves of such distant regions as Argentina, Australia, and India, in appreciable quantity, owing to the ever-shrinking supply of merchant shipping resulting from the destruction of tonnage by unrestricted submarine warfare. The urgent needs of western Europe had to be met from

the scanty surplus of North America. As it has been well put:[1] "Wheat and the products of wheat became war munitions, and war munitions are bought with a ruthless disregard of all commercial factors." Under such conditions the ordinary conditions of demand and supply can hardly be said to exist at all. In a sense, the law of demand and supply was simply inoperative. There resulted an abnormal and quite unprecedented condition in the wheat and flour market of the United States during the spring of 1917. The highest price paid for cash wheat since the Civil War was reached in April; by the middle of May it had advanced nearly 50 per cent more. Curiously enough, high prices of wheat and flour had the effect of stimulating rather than checking the buying demand of American distributors and consumers. Flour consumers were frightened at the prospect of impending scarcity, and their fears were not allayed by the very gloomy reports issued by the Department of Agriculture on the condition of the winter wheat crop and the injudicious utterances of its officials and other public men concerning possible famine conditions to come. There resulted a veritable flour panic; with each successive increase in prices there was a fresh wave of hysterical buying; speculation by flour jobbers and dealers, as well as by wheat operators, was rampant. Extraordinary profits were taken, in many cases almost reluctantly taken, both by millers and grain dealers. Predictions were freely made by responsible officials that still higher prices might be expected unless the market was controlled. The buyers for the foreign governments had well-nigh cornered the market through their ownership of the May future; the market was really "oversold" and the selling interests wanted some action taken to protect them from excessive loss. Finally, on

[1] By Mr. Julius H. Barnes, President of the Food Administration Grain Corporation.

May 14, under pressure from government officials and from public sentiment, the directors of the Chicago Board of Trade prohibited further trading in the May future and forced the settlement of outstanding contracts at a price fixed by a committee. With cash wheat selling at $3.45 the committee set a maximum price of $3.18 for the May contract. Subsequently speculative trading in the July and September futures was also prohibited and outstanding contracts terminated. The committee fixed the settling prices on these contracts at $2.75 and $2.45 respectively. Similar action was taken by the other important exchanges. "The moment this was done," to quote the words of a keen observer,[1] "the whole American marketing system fell like a house of glass."

II

Evident Necessity for Government Control

In these conditions it became abundantly evident that some form of control was necessary if the situation was not to get out of hand altogether. As early as April, 1917, the Council of National Defense had summoned Mr. Herbert C. Hoover, who had discharged with signal success the perplexing and difficult task of rationing the Belgian nation, to come to the United States to undertake a similar task for his own country. Mr. Hoover arrived in Washington early in May, but found the political situation so unsettled as to make it extremely doubtful whether he could render useful public service. It is not the purpose of this paper to trace the tortuous course of the so-called Food Control Act through the debates of Congress; suffice it to say that many interests were arrayed against the appointment of a business man

[1] Mr. Julius H. Barnes.

to a position of real authority in Washington. However, Mr. Hoover had the backing of the President, and he proceeded at once, tho unofficially, to the working out of plans for the effective control of the food industries which might be put into operation as soon as authority was granted to do so. The first important industry to be considered was the wheat and flour trade.

The next few months were a period of anxious waiting on the part of the commercial interests affected. Already in April the Council of Grain Exchanges had sent representatives to Washington to confer with the Secretary of Agriculture and to work out some plan of control acceptable to the government and the trade. Out of these consultations was organized the Committee of Grain Exchanges in Aid of National Defense. This committee together with a somewhat similar committee representing the western exchanges, met in conference with Mr. Hoover on May 16, and at his request submitted a tentative outline of a plan of control. This plan emphasized: the absolute necessity of direct government control of the transportation of foodstuffs (interchange of railroad cars, etc.); the fixing of a wheat price and its maintenance for the entire crop year without change; the control by the government of the distribution of the available wheat supply, and, as a means to this end, such control over terminal and country elevators as to deprive everyone, except the government, of their facilities for the storage of wheat (and rye); the discontinuance of trading in futures in wheat on the grain exchanges; and the limitation of the practices, by consumers, of buying flour far in advance, and by mills, of contracting for the sale of flour further ahead than "prompt shipment." This remarkable document foreshadowed many of the most important policies which were later adopted by the Food Administration. The

conclusion was reached at these conferences that, with the elimination of waste and proper conservation in this country, an ample supply of grain would be available, both for domestic consumption and for the requirements of the Allies. The problem was, therefore, one of administration; the creation of a Food Administration was the logical recommendation.

Coincidently the flour milling industry had become alive to the necessity of some stabilizing action by public authority, and at the inspiration of Mr. W. C. Edgar, editor of the *Northwestern Miller*, sought to get the support of Mr. Hoover in a scheme for the reduction of wheat prices and in a plan of milling regulation which would be acceptable to the trade. In May, Mr. Hoover met some of the leading millers in conferences and received suggestions for a plan of government control. Some of these suggestions were of a drastic and far-reaching character, based upon the authority granted to the President under the National Defense Act. They extended to the requisitioning of grain at country points of shipment, the pooling of all terminal elevator facilities at the primary markets, the fixing of prices on all grains and on flour, the placing of an embargo upon exports of grain and grain products, and the direction of all export movement by the food controller. These suggestions were deemed impracticable or their execution considered unwise; it was evidently the preference of the President to wait for specific authorization by Congress rather than to exercise the war powers conferred in general terms under the Defense Act.

Another set of suggestions was contained in a letter of May 27, to Mr. Hoover, signed by ten prominent representatives of the milling trade who had been in Washington in discussion of the Lever food control bill before Congress. These representatives urged the absolute

necessity of a national food administration, and desired immediate action because of the pressure of forward contracts covering the purchase of new wheat and the forward sale of flour. They recommended that the food controller be given authority over the transportation of foodstuffs both by lake and rail; that all foreign buying of foodstuffs be under the jurisdiction of the food controller, with a view to effecting a fixed price of grain, and perhaps of grain products; that a maximum price be fixed on flour; that relative prices be fixed on coarse grains (corn, oats, barley, etc.) with reference to the prevailing price of wheat, so as to encourage their use and insure the conservation of wheat flour; that the practice of buying flour for long deferred shipment be discontinued; and that a "milling executive" composed of members of the milling industry be designated to act as intermediaries between the proposed Food Administration and the milling trade with a view to enlisting the helpful coöperation of millers generally.

A suggestion somewhat similar to this last idea was contained in a brief submitted to Mr. Hoover on June 10 by Mr. W. C. Edgar. This interesting paper called attention to the state of demoralization existing in the milling industry, growing out of the inability of the millers, unaided, to remedy the existing trade deadlock, in view of the price-fixing debate in Congress and the prevailing uncertainty as to what would be done and when. Conditions had really become critical; many millers were afraid to buy wheat, since the hedging market was closed and there might be sudden and arbitrary change in the wheat price through Congressional action. They were also unwilling to accept orders for flour, except those specifying immediate shipment, in view of the probability of repudiations if prices should be reduced. Many mills were, therefore, greatly

curtailing their output, just at the moment when commercial stocks had already been reduced to a dangerously low point.

The winter wheat crop was already beginning to move in the Southwest and the millers needed some assurance as to what would be done before they could with safety handle this wheat. Therefore, Mr. Edgar suggested that, without waiting for action by Congress, the Food Administrator, acting under the President's authorization, proceed to organize the milling industry on a cooperative basis for the purpose of working out definite plans for the regulation of the trade. A scheme of organization was proposed calling for the appointment of a Milling Executive or General Chairman, eight heads of divisions, one for each of the eight milling geographical sections of the country, and twenty-nine heads of sub-divisions. These were all to be active millers and were to receive their appointments from the Food Administrator; the whole organization to be an advisory body, appointed tentatively to work out the machinery for the control and administration of the milling industry, which could be put into operation immediately upon legal authorization by Congressional action.

This course of action was decided upon by Mr. Hoover, who on June 22, appointed a committee of nine leading members of the industry, representing the several sections of the country. This body, known as the United States Millers' Committee, conceived its duties as the perfecting of a self-controlled organization of the milling industry, acting in conjunction with the proposed Food Administration. On June 28 it reported a plan which embodied some of the principles ultimately adopted as the basis of the milling regulations. The most important single feature which had been elaborated at this time was the scheme for control-

ling flour prices. It was proposed that under the intra-trade agreement each mill should be entitled to sell its products on a cost plus profit basis, provided the cost of manufacturing and marketing did not exceed seventy-five cents per barrel, while the amount of profit was to be limited to twenty-five cents per barrel; the quantity of wheat that might be used in making a barrel (196 pounds) of flour was limited to 4.75 bushels (285 pounds) — a rate of flour extraction equivalent to 69 per cent. These were liberal figures, but they were deemed necessary for the accommodation of the less well equipped mills whose coöperation in the regulatory plan it was considered essential to obtain.

This whole plan for self-regulation of the industry, under the supervision of practical millers, was predicated upon the ability of the Millers' Committee to secure an agreement on the part of the mills respecting the allocation of business among them on the basis of their average output for the three preceding years. This was to be brought about by the proportionate allotment of wheat to the mills under government direction; export orders and government contracts were to be awarded on a pro rata basis to the mills through a central selling agency. By voluntary agreement the mills were also to limit their sales of flour to a period thirty days in advance; a uniform sales contract was to be used. To pay the expenses of administration a monthly assessment of one cent per barrel of output was to be levied on all mills entering the organization.

To this plan of milling regulation Mr. Hoover gave his approval in general terms, and he proceeded to the formation of the regional sub-committees but refrained from committing himself to specific plans until legal authority was granted. Early in July the Millers' Committee sent an announcement to the trade (through the

offices of the Millers' National Federation) setting forth what had already been accomplished in voluntary organization; millers were requested to signify their willingness to coöperate in the further work of the Committee. Within a few weeks favorable replies were received from mills representing a majority of the producing capacity of the country.

III

Slow Progress of Legislation

Meanwhile legislative action still dragged, and altho prices had receded from the high levels of May and early June, which materially reduced the difficulties of the mills in effecting the adjustment from the old crop to the new, the mills quite generally still refrained from buying wheat or selling flour ahead because of the risks of a declining market. In the absence of a hedging market it was impossible to bridge the gap between the current high prices of wheat and flour and the prospective lower prices when the new crop should be harvested.

On June 18, President Wilson made public a letter addressed by him to a member of Congress in which he urged the quick passage of food legislation in order that prices of foodstuffs might be reduced by putting a stop to speculation. The President declared that legislation was urgently needed before July 1, if the country was to be made safe from these dangers of speculation and oppressively high prices.

July 1 came and went, but with it came no food legislation. On July 11, the President gave to the press a letter from Mr. Hoover which called attention to the perils of delay. This statement rehearsed the fact that the farmers had received an average price of $1.51 per bushel for the 1916 wheat harvest, while the price at

Chicago had gone as high as $3.25. Flour prices are based upon current, i. e., "speculative" wheat prices; thus the consumer had been made to pay as much as 100 per cent more than the producer had received. This great increase in the margin between producer and consumer was due not so much to vicious speculation as to the fact that every link in the distribution chain had found it necessary to exact wider profit margins in order to be insured against the risks of widely fluctuating prices during a period when practically all normal price stabilizing agencies had been disrupted by the effects of war. A consequence was that large masses of people were actually being undernourished in the great consuming centers, due to the exorbitant cost of living.

Mr. Hoover's statement also called attention to the consolidation of Allied buying into the hands of a single agency, the Wheat Export Company. Thus the export price became subject to the will of this one purchaser. Not only this, but the growing shortage of ocean tonnage would necessitate spreading the export movement of the new crop over a considerable period, whereas it had normally been concentrated into the fall months. The result would probably be a serious glut in the interior terminal markets, which would place an added strain on the financial resources of the legitimate grain trade and probably necessitate the assistance of a considerable speculative element. The necessity of reliance upon the speculative element to carry the surplus stocks which would result from physical restrictions upon freedom of export movement indicated that the speculators' toll would inevitably be levied again upon both producer and consumer. To protect the farmer from a disastrous slump in the price of his wheat resulting from a glutted market, some strong and efficient government action was absolutely necessary, not only to secure a just

return to the wheat grower, but in order to stimulate production for the next year. The necessary and desirable kind of action was that the government should buy the surplus wheat at some reasonable minimum price, and by so doing stabilize the market for the benefit of both producer and consumer. The speculator could thus be dispensed with altogether.

To meet the peculiar conditions prevailing in the midsummer of 1917 it had been suggested that the Wheat Export Company enter into an agreement to protect the mills from loss on their unsold wheat and flour which might be occasioned by sudden and arbitrary reduction of prices through government action. Under normal conditions of business it is a regular feature of the operations of most flour mills to seek orders for flour far enough in advance of delivery to insure continuous and uninterrupted grinding; this implies contracting ahead for supplies of raw material. But with the conditions existing in May and June of 1917 it was unsafe for a mill to make new forward sales, since new purchases of wheat for future delivery were forbidden by the emergency rules of the exchanges; and to accumulate "unsold" stocks of wheat was a pure gamble. As the largest single buyer in the market, it was apparent that the Wheat Export Company would be the chief beneficiary by the expected reduction in wheat and flour prices. Some tentative arrangements were, in fact, entered into: the Export Company undertook to "take up the slack" between the millers' unsold and unhedged wheat and flour at the basis of $2.00 per bushel, Chicago, and any price below that figure which might be established by government action. At no time during June or July did the price approach $2.00, however, and on July 12, owing to the delay of Congress to enact legislation, the Wheat Export Company withdrew its assurance.

IV

For the next month wheat prices approximated the $3.00 mark at the principal interior terminal markets. It was not until August 8, however, that the Food Act was finally passed in a form acceptable to the President. The preamble to the Act recited that the existence of a state of war made it essential to assure an adequate supply and equitable distribution, and to facilitate the movement of foods, feeds, fuel, implements, etc. (defined as "necessaries"); to prevent scarcity, monopolization, hoarding, injurious speculation; and to establish and maintain governmental control of such necessaries during the war. When it came to a definite grant of powers, however, the Act was as significant for what it omitted as for what it contained. There was no specific reference in it to a Food Administration; the powers of control over the food purveying industries rested (almost wholly) upon the licensing provisions, under which storage charges, commissions, practices, and profits were required to be just, reasonable, non-discriminatory, and fair, under penalty of revocation of license. The only price-fixing authorized, aside from that of coal and coke, was the minimum guaranteed price to the producer of $2.00 per bushel for wheat of the 1918 harvest; this minimum guarantee was designed to stimulate the planting of a large crop in 1917–18. The President was authorized to buy, store, and sell wheat, flour, meal, beans, and potatoes; for this purpose the sum of $150,000,000 was appropriated. The Act contained stringent provisions against the destruction, waste, or hoarding of necessaries, and against conspiracies to restrict their supply or enhance their price. Farmers, however, were specifically exempted from the

provision against hoarding. The President was authorized to requisition foods, feeds, and fuels for public use, and storage facilities for the same, as well as factories, pipe lines, mines and other plants used in their production. He was also given practically absolute power over the operations of produce exchanges and boards of trade and the transactions carried on therein. A provision of signal importance for the regulation of the grain and flour trade was the authorization of voluntary agreements for carrying out the purposes contemplated by the Act.

The Food Act was approved on August 10, and on the same day the President appointed Mr. Hoover as Food Administrator. Mr. Hoover announced the aims of the Food Administration as threefold: (1) to regulate the trade so as to eliminate vicious speculation and to stabilize prices; (2) to guard exports so as to retain sufficient supplies of foodstuffs within the country for domestic use; (3) to stimulate food saving and conservation so as to set free for export to the Allies as large a quantity of food as might be necessary. Three months previously Mr. Hoover had announced that the task of food administration could be successfully accomplished through the voluntary coöperation and direction of legitimate distributors of foodstuffs and with the help of the women of the country. Already the latter part of this program had been put into operation under the direction of the President, without waiting for legal sanction by Congress. A well organized and widespread conservation campaign was launched in June. There remained the complex task of perfecting the policies of trade control and regulation.

The machinery which had been elaborated for the control of the wheat and flour trade was the first to be set in motion. On August 12, the plans of the Food

Administration for the control of wheat, flour, and bread were announced. Attention was called to the disruption of the world's normal wheat markets (owing to short crops in many producing countries, lack of ocean tonnage, and unavailability of accumulated stocks in certain countries cut off by belligerent lines), and the consequent demoralization of the regular commercial price-making agencies for wheat; to the fact that the Allied governments had centralized their wheat purchasing in the United States and had thus acquired a dominating position in the buying market; to the possibility of an early termination of the war and the consequent release of large stocks of wheat from sources currently unavailable as a further unsettling factor. All these considerations pointed to the necessity of some efficient government action to stabilize wheat prices for the protection of both producer and consumer. To meet this situation the Food Administration announced its intention to open agencies at the principal terminal markets for the purchase of all wheat that would be offered, at a fair price which would be maintained through the entire harvest year 1917–18. If necessary, the Food Administration would take the whole harvest in order to maintain a fair price. It was planned to resell wheat to the flour millers, and for export in limited quantities. The grain exchanges were asked to suspend all dealings and quotations in wheat futures, beginning with September 1; further to reduce speculation in wheat and flour, all elevators and all mills of over 100 barrels daily capacity would be required to take out a government license, the chief conditions of which were that only reasonable and customary charges should be made for warehouse service, and that no wheat should be stored for more than thirty days without the approval of the Food Administration.

On August 14 was announced the incorporation of the United States Food Administration Grain Corporation, organized under the laws of the state of Delaware, for the purpose of controlling the wheat supply; the entire capital stock of $50,000,000 was to be held by the United States government. The Grain Corporation was designed as the agency through which the Food Administration would make its purchases of wheat at the terminal markets, and also arrange for the control of exports of wheat to the Allies and to neutral nations. The Food Administration announced that in its control over exports it would stipulate for a large proportion of export of flour instead of wheat, and in this way encourage a large home production of flour and thus reduce manufacturing costs, and secure to the American public the benefit of lower conversion and distributing costs, as well as provide a large supply of mill feed for the livestock and dairy industries.

In the meantime the provisional organization of the United States Millers' Committee had been confirmed by the President. The committee assembled at Chicago, August 14–15, where the plans for the regulation of the milling industry were worked out in detail. The whole country was divided into eight (later nine) districts, each with a milling executive at its head; a committee of representative millers was appointed in each district and administrative offices set up at the divisional headquarters; a central office was established at New York; each member of the central committee was made divisional chairman over his own district; and the entire structure was designated the United States Food Administration Milling Division.

V

Through the Milling Division a voluntary agreement was entered into with the Food Administration by several hundred millers providing for the regulation of the industry; voluntary agreements were also made between the millers and the Grain Corporation. The chief provisions of these agreements were that the mills should not pay a higher price for wheat than the fair price adopted by the Food Administration for government purchases; that the Grain Corporation should guarantee the mills against a loss by decline in the value of their unsold wheat and flour below the government price basis, bought during the period of the agreement; that the Grain Corporation should endeavor to maintain in available positions an adequate supply of suitable wheat to meet the milling demands of the mills, and secure an equitable distribution of wheat between the mills on a pro rata basis; — each mill's quota was to be proportionate to the ratio that its average grind during the three years 1914, 1915, 1916 bore to the total average grind of all the mills during that period, due allowance being made for new capacity; that the millers should operate their mills at a profit not to exceed twenty-five cents per barrel on flour, and fifty cents per ton on feed — about two cents per barrel of flour additional; that they should make a return upon oath of their profits earned during each month; that they should not contract to sell flour more than thirty days in advance (thus reducing speculative buying); that they should not store wheat without the permission of the Food Administration for more than thirty days' supply; and that the Grain Corporation should apportion over the entire milling trade all export sales of flour.

The Food Administration took the view that it did

not possess legal authority to prescribe prices: hence the method of voluntary agreement. The difficulties of the situation were very great. At the date of the passage of the Food Act, August 10, the price of cash grain at Minneapolis was around $3.00 per bushel while the September future was quoted nearly $1.00 per bushel lower. The Millers' Committee had hoped to get the sanction of the Food Administration to an intra-trade agreement to force down prices, but at the last moment (August 24) the Attorney General's office ruled that such an agreement was in conflict with the anti-trust laws, and it was necessary to abandon it and substitute in its place an individual agreement between the Food Administration and each miller. This altered the whole legal aspect of the plan of regulation adopted. Under the earlier arrangement the Millers' Committee had represented trade autonomy and proposed to operate in conjunction with rather than under control of the Food Administration; as finally worked out the Milling Division became a subordinate branch of the Food Administration, and its members became officers of the government. None the less, the original proposals of the committee became the basis of the regulations adopted for the control of the milling industry, and a considerable measure of discretion as to their enforcement was of necessity lodged in the Milling Division.

The flour milling industry is composed of nearly 7,000 distinct units representing a wide variety of methods in manufacturing and selling, in grinding different kinds of wheat, and in producing at greatly varying costs. Owing to the partial abandonment of the earlier plan of price regulation, it became necessary to mobilize this great industry within a period of ten days, and to induce substantially all the considerable mills to enter the agreement with the Food Administration, so as to give promise of making it effective.

What were the inducements to mills to enter such an agreement? At first sight it might seem that in so doing a mill was surrendering a great deal. The acceptance of the three-year basis of wheat allotment and consequent restriction of business operations, *seemed* to be a sacrifice of individual commercial initiative. However, the circumstance that the Grain Corporation would have practical control of wheat supplies made it imperative that all except remote country mills do their purchasing through the Grain Corporation, if they were to get any wheat at all. On the other hand, there was the positive assurance that under the Grain Corporation's wheat allotment plan the relative position of all the units in the industry, at least in so far as they entered the agreement, would be maintained. Each mill would be entitled to a definite pro rata share in the total flour business. There was also the assurance of an opportunity to share in the export business (and to bid upon government contracts upon a preferred basis).

Considerations of a more dubious kind doubtless had their influence also in bringing wavering millers into the agreement. With the sweeping powers of profit control which could be exercised under the licensing section of the Food Act, it must have been realized that a free rein would not be given to those concerns which elected to remain outside (the agreements). Contrasted with this was the quasi-promise held out by overzealous members of the Milling Division that the twenty-five cents per barrel profit maximum was equivalent to a guaranty of twenty-five cents per barrel net. This was a rate of profit which was tempting indeed, compared with the rates which were normal for the industry.[1]

[1] The Federal Trade Commission's Report on Flour Milling and Jobbing, issued April 4, 1918, showed that for the year 1912–13, the net profit per barrel had been 14 cents, and this yielded a return of over 9 per cent upon the investment; for the year 1913–14, the profit per barrel was 19 cents, yielding a return of about 13 per cent on the

There was the further consideration that the Milling Division would be administered by successful millers, in sympathy with the trade, and themselves having a large stake in the ultimate success of the plan of intra-trade control. Sundry advantages were to be expected also from the various forms of assistance which the Grain Corporation and the Milling Division might render individual millers, through car service bureaus, help in arranging export shipments and sales to the government, and from the intangible, tho important "advertising value" resulting from the exploitation of the fact that the agreement mill was a "member of the Food Administration." A quite different stimulus operating in the same direction was the pressure put upon the trade by the editorial policy of the leading trade journal.

Not least among the considerations leading millers, and grain dealers also, to enter the agreement with the Grain Corporation, was the guaranty by the latter against a decline in the value of wheat or flour below the government price basis. Had the Grain Corporation been obliged to rely upon its own capital of $50,000,000 it could not safely have assumed this great hazard. Arrangements were entered into with the Wheat Export Company, however, backed by the financial resources of the British Treasury, by which the Export Company practically underwrote the purchases of the Grain Corporation. As it was, the latter assumed the function of protecting unsold stocks of wheat or flour against price risks, and thus stepped into the gap which the restriction of future trading had left in normal hedging operations.

As the result of all these factors over three thousand millers, first and last, pledged themselves to operate their businesses in agreement with the Food Adminis-

investment; for the year 1914–15, the rate of profit had been 25 cents per barrel, yielding a return of nearly 16 per cent on the investment; for the year 1915–16, the profit per barrel was 21 cents, yielding a return of about 15 per cent on the investment.

tration. The significance of this lies chiefly in the fact that without such voluntary agreements by the mills to observe the government fair wheat price that whole plan of regulation, both as to wheat prices and flour prices, would have fallen through, for there was nothing in the law to prevent a mill from paying any price for wheat that it chose. In fact many country mills did elect to remain outside, and some of them greatly increased their volume of business by offering the farmers a better price than the agreement mills could offer. Owing to the representations of the Milling Division, however, far the greater part of the flour milling capacity of the country was induced to enter the agreement to abide by the government's fixed wheat price. This immensely simplified the whole problem of regulation. The Milling Division deserves great credit for having accomplished this highly difficult task.

Partly to meet the problems presented by the non-agreement mills and partly to extend the principle of uniformity as widely as possible, the Food Administration decided to license every flour mill having a capacity in excess of 100 barrels daily.[1] Over six thousand mills were licensed, first and last, and practically all the provisions of the voluntary agreement except those relating to the fair wheat price were made applicable to the business of the licensees. Among the more important of the license provisions were those which prohibited the storage of wheat and rye for more than thirty days, limited the rate of profit to twenty-five cents per barrel, and prescribed the minimum rate of flour extraction. In other words, practically the only rule governing flour milling operations which was left as a matter of voluntary agreement was that relating to the maintenance by the agreement mills of the government's fair wheat

[1] Subsequently (January 10, 1918) the size limit was reduced to 75 barrels.

price. With this one large exception, therefore, the effective control of profits and commercial practices by the Food Administration rested upon the powers of license control and not upon the agreement. Owing to the partial abandonment of the earlier plan of price regulation, it became necessary to mobilize this great industry within a period of ten days, and to induce substantially all the considerable mills to enter the agreement with the Food Administration, so as to give promise of making it effective.

VI

With a view to determining a fair price at which the government's wheat purchases should be made, the President announced on August 14, the appointment of a committee of twelve members selected from representatives of the various producing sections and consuming interests of the country. The Food Administration announced in advance its intention "to use every authority given it under the bill and the control of exports to effect the universality of this fair basis throughout the whole of the 1917 harvest year without change or fluctuation," and further declared "if it is necessary for the government to buy the entire wheat harvest in order to maintain this fair price in protection of the producer, we intend to do so." By stabilizing the price of wheat throughout the year the Food Administration hoped to eliminate the hazards of operation of the milling and distributing industries, due to price fluctuations, and to restore the normal margins of profit, so that the price of flour and the price of bread would also be stabilized and presumably be reduced.

On August 30, the Wheat Price Committee made its report to the President recommending the fair price to

be paid by the government for wheat of the 1917 harvest. In reaching its decision the Price Committee had to reconcile the conflicting claims of producer and consumer, bearing in mind the necessity of encouraging the one and yet not discouraging the other. The Committee called attention to the consideration that the government price for the 1917 wheat crop was, in effect, a continuing guaranty until the minimum price guaranteed by Congress for the crop of 1918 should go into effect. The price recommended was $2.20 per bushel, based on No. 1 Northern spring wheat, or its equivalent, with appropriate discounts for lower grades, delivered at Chicago. The Grain Corporation had already established a schedule of differentials to govern the different grades, and relative prices at the different terminal markets. In announcing to the press the report of the Wheat Price Committee the President authorized a statement reading in part as follows:

> It is the hope and expectation of the Food Administration, and my own also, that this step will at once stabilize and keep within moderate bounds the price of wheat for all transactions throughout the present crop year, and in consequence the prices of flour and bread also. The Food Act has given large powers for the control of storage and exchange operations, and these powers will be fully exercised. An inevitable consequence will be that financial dealings cannot follow their usual course. Whatever the advantages and disadvantages of the ordinary machinery of trade, it cannot function well under such disturbed and abnormal conditions as now exist. In its place the Food Administration now fixes for its purchases a fair price, as recommended unanimously by a committee representative of all interests and all sections, and believes that thereby it will eliminate speculation, make possible the conduct of every operation in the full light of day, maintain the publicly stated price for all, and, through economies made possible by stabilization and control, better the position of consumers also.

VII

When the Grain Corporation began active operations early in September it found itself confronted by a set of peculiarly difficult problems. Not least among these was the hostile attitude of many wheat growers which arose from widespread resentment against the policy of fixed price control. This resentment was reflected in unwillingness to sell at the established price basis. Kansas and Dakota farmers, as well as those of the Pacific Northwest, began an agitation for an increased price. The wheat market was in a state of chaos, with the ordinary machinery of the grain trade almost entirely dislocated, and the normal milling production of the country so greatly reduced that there was a dangerously low level of flour reserves as well as a shortage of wheat at the terminals. In spite of the extremely small carry-over from the short crop of 1916 — less than one month's needs for domestic consumption — over ten million bushels of wheat and nearly two million barrels of flour were exported in July and August.

VIII

Obviously the first need was to stimulate the idle milling capacity of the country to renewed activity and to restore the flour reserves to the safety mark as quickly as possible. With this end in view the area of the United States was divided into fourteen zones centering about the leading terminal grain markets, and in these fourteen cities and in four " sub-terminal " markets buying agencies were established, each under the direction of a leading member of the grain trade, who gave his services without remuneration and who was required to dissociate himself absolutely from his business interests in

the grain trade. These government buyers were entrusted with the responsibility of administering the Grain Corporation in their respective zones. A large measure of local autonomy was granted to each zone agent as to the methods he should adopt in meeting the particular problems sure to arise in his own district, but in general the scheme followed was that the Grain Corporation replaced the elevator and warehouse men and grain dealers at the terminals as intermediaries between the country shippers of wheat, whether elevators or farmers on the one hand, and the flour miller and exporters on the other. The prohibition against storage of wheat and rye for more than thirty days, which was made applicable to grain dealers as well as to mills, practically put out of business this whole group of middlemen at the terminal markets, so far as trading in these grains was concerned. Further, the practice of mixing wheat of different grades was absolutely prohibited during the season of 1917–18. The large terminal elevators, which normally carry enormous quantities of wheat through the winter weather, and many of which earn large revenues from mixing wheat of varying grades, enjoyed very little business in wheat under this arrangement. In those markets where grain is ordinarily consigned by county shippers to commission merchants and by them sold to millers or other buyers, the modification of the method of doing business previously in vogue consisted chiefly in requiring all dealers who had wheat for sale at the terminal markets to report their receipts each day to the Grain Corporation zone agent, who then apportioned the available supplies to the mills at the government fair price plus an administration fee of one per cent to cover costs of operation. The Grain Corporation itself bought as little wheat as was necessary to promote the rapid distribution of grain

to the mills and to export agencies, and then only as unloaded in elevators at terminal points. It did not buy at all from farmers or original shippers and discouraged direct consignments on which it collected a one per cent commission charge on account of the administrative labor involved.[1]

Of necessity, government control of the wheat business operated greatly to restrict the field of individual enterprise. In view of this fact and of the consequent hardship imposed upon many elements of the trade, the practically unanimous endorsement of the policies and plans of the Grain Corporation by a representative body of terminal elevator and grain dealers assembled at Washington, August 15, 1917, and also by a body of seven hundred terminal and country dealers in convention at Buffalo, September 24, 1917, must be taken as a striking testimonial to the fairness of the Grain Corporation's methods of operation and as convincing evidence of appreciation by the trade of the necessity of government control.

The mode of allotment of wheat to mills within a given zone, and to "outside" mills drawing upon a particular market, was based upon a proportional arrangement determined by averaging the grind of each mill making requisition for wheat in the zone for the three years 1914, 1915, 1916, and alloting to each a percentage of the available wheat equal to the percentage which its average grind for the three years specified was of the total grind for all the mills during the same period,

[1] In the purchase of wheat the Food Administration acts purely in a merchant capacity, buying wheat at the interior terminals, and reselling on the one hand to the millers for domestic consumption and on the other hand for export purposes. To make sure that its operations will be conducted without loss, the Food Administration has secured assurances from the Allies that they will purchase at the "fair price" all wheat delivered at the seaboard and placed at their disposal. To cover its cost of operation the Food Administration adds one per cent to the cost of wheat at the interior terminals when it sells (to millers or to exporters). United States Food Administration: Policies and Plan of Operation; Wheat, Flour and Bread. December 1, 1917, p. 32.

due allowance being made for new capacity. By their agreement with the Grain Corporation the mills pledged themselves to do their buying through its agencies and not independently, except where buying directly from farmers and local dealers at country points. Grain shippers at country points were required to advise the zone agents in advance of their wheat available for shipment. More than two-thirds of the 20,000 country elevators entered into an agreement with the Grain Corporation by the terms of which the latter, upon payment of storage and carrying charges at the rate of two cents per bushel per month and guaranty to the elevator operators against a decline in the price of their wheat below the government basis, secured the right to control the disposition of the elevators' stocks of wheat, either as to retention at point of origin or, upon adjustment of returns, diversion of shipment from the destination originally intended. By this control of country shipments, by eliminating to a considerable degree the buying of the terminal elevators, and by strict attention to details of traffic reënforced by efficient car supply departments maintained for the aid of grain and flour shippers, the Grain Corporation was able to take the wheat from point of origin and to deliver it to the mills with but very little delay and burden of transportation and handling costs. During the first three months of operation by the Grain Corporation the receipts of wheat at the primary markets ran nearly 100,000,000 bushels behind the figures for the corresponding months of 1916 — a decline of nearly 60 per cent — but the rate of flour production during the same period was over 15 per cent larger than during the corresponding period for the previous year, notwithstanding the fact that in 1917 the total available stock of wheat was over 15 per cent less than the 1916 stock. For the entire crop year, from

July 1, 1917, to June 30, 1918, the aggregate receipts and shipments of wheat at the eleven principal interior markets and the seven chief export points were less than half the corresponding figures for the previous year. The output of flour, on the other hand, was, as nearly as can be calculated, almost exactly the same in the two periods — namely, slightly over 100,000,000 barrels in each year.[1]

In order to secure an equitable distribution of the available wheat stocks among the mills of the several milling divisions it was necessary for the Grain Corporation to rearrange existing supplies by diverting local surpluses as far as possible from regions of excess to regions of deficit and to fill in the gaps by the importation of supplementary supplies from outside sources. A policy agreed upon with the Allies of treating the North American crop largely as a whole enabled the Grain Corporation to draw upon the movement of the Canadian surplus via the Great Lakes to the extent of about 24,000,000 bushels during the year 1917–18. About 4,000,000 additional bushels of wheat were imported from Australia, chiefly in small sailing vessels. Nearly 700,000 barrels of flour were also imported from these two sources.

IX

The achievements of the Grain Corporation in distributing the existing wheat stocks so as to prevent local scarcity and avoid waste and in conserving every bushel possible for the needs of the Allies, were accomplished in spite of serious car shortages and port congestion. In one important wheat growing region the transportation

[1] There are scarcely any reliable statistics on the aggregate flour production of the United States except those supplied by the U. S. Census of Manufactures at five-year intervals. I have followed the estimates of the Statistical Division Information Service of the Food Administration.

situation was actually improved by the action of the Shipping Board in providing tonnage for the movement of flour from the Pacific Coast to Atlantic ports and for export, and in another by the action of the Grain Corporation itself in reorganizing the wheat movement on the Great Lakes.

With the progress of the war and the shrinkage of shipping available to carry wheat from the North Pacific coast to its usual export destination, an extra burden had been thrown upon the transcontinental railroads to move wheat from this section to the eastern milling and consuming centers and to the Atlantic and Gulf ports for foreign shipment. The Pacific coast mills had also begun to build up a very large flour business in the southeastern states, where the product of the soft starchy wheats of Washington and Oregon was in high favor. The freight rates on these transcontinental shipments on both wheat and flour were very high and the establishment of a fixed wheat price based upon Chicago made the returns to the Pacific coast wheat growers relatively low. The organization of the grain trade in this section differs from that which prevails typically in other parts of the country in several essentials. Grain is harvested and handled largely in sacks instead of in bulk, and is stored in that form in flat warehouses instead of in elevators equipped with machinery. Because of that condition and also because of the peculiar climatic conditions of the principal wheat growing districts of the Pacific Northwest, the crop is marketed in a different manner and leaves the farm more cleanly in the early months of the crop year than in other sections of the country.

Now the calculation of the Pacific coast wheat price on the basis of the Chicago price for equivalent grades less freight and other shipping charges introduced no

new element into the situation; it merely affirmed a condition which had existed for practically two years. None the less complaint at once arose on the part of the Pacific coast wheat growers and handlers against putting them on the basis of Chicago price, less freight. With the prospect of ocean transportation available owing to the construction of new ships at Pacific yards it became possible to establish a base price at North Pacific export points on an overseas basis instead of adhering to the former price based on rail transport to Chicago. Therefore, having got assurance from the Shipping Board of fairly reasonable water rates, the Food Administration on September 22 established a base price at Portland and Puget Sound ports for No. 1 Northern, or equivalent, at $2.05 per bushel for bulk wheat with the usual premium for wheat in sacks. This meant an increase in the price to the grower in eastern Washington and Oregon of approximately fifteen cents per bushel over the price based on Chicago. A very large wheat crop in those states which would otherwise have seriously hardened the rail carriers was largely retained on the Pacific coast for grinding by the local mills and the product shipped by water instead of by the usual rail route overland.

The other critical transportation problem, aside from chronic car shortage, was presented by the conditions on the Great Lakes, where the available carriers had been seriously depleted by the action of the Shipping Board in transferring to the Atlantic such vessels as were suitable for use on the ocean. Lake facilities for grain shipment promised to be inadequate for the urgent ore movement plus the also urgent coal movement, plus the grain and flour movement. Grain shipments during the fall, at least from the Canadian Northwest, might be expected to be very large. To protect the large mills at

the eastern end of Lake Erie, as well as to keep a stream of wheat flowing to New York, the Grain Corporation made an agreement with the Lake Carriers Association operating American steamers and with the Canadian Association controlling Canadian steamers, by which they guaranteed to furnish at a maximum rate of 4½ cents per bushel, basis Duluth to Buffalo, all the carriers which the grain trade would require. In return for this the control of the grain trade on the Lakes was to be put entirely in the hands of the Grain Corporation agent at Buffalo as to the placing of boats for discharge at the elevators available there, so that boats should not be required to wait their turn behind particular elevators. The result was that for the first time in twenty years there were no blockades at the eastern end of the Lakes and a much larger use of the Lake facilities was therefore made possible. In fact the full ore movement was handled and the full amount of coal stocks at the northwest was transported during the season of open navigation, while in addition the entire grain movement was handled — all by a lake fleet which had promised to be inadequate.

X

The Grain Corporation did not deal directly with the farmers, since it confined its wheat purchases to the stocks held in elevators and warehouses and to the daily arrivals at the terminal markets. None the less, the attitude of the farmers towards the fixed wheat price was an important factor in the practical operation of getting the wheat to the mills.

The theory of the stabilized price was that it relieved the growers of the burden of marketing wheat at the expense of necessary farm work for fear of a decline in the price, and also, by removing the expectation of a

higher price later in the year, would promote a more even marketing of the crop through the year. The event justified this expectation of the Food Administration only in part. During July and August, while Congress was discussing the Food Bill and before the Grain Corporation entered the field and the Wheat Price Committee had reached its decision on a fair price — a period which offered unusual hazards to buyers, millers, and handlers, as well as leaving the farmer in doubt as to the final price outcome — the farm marketings of wheat were, as nearly as can be ascertained, 88,000,000 bushels;[1] whereas for the ten weeks from July 1 the theoretical average as computed by the Department of Agriculture for farm marketings for a crop of this size should have been 144,000,000 bushels; the actual marketings were apparently 56,000,000 bushels behind the normal for the crop.

The failure of Congress to pass the Food Bill, as the President had urged, in time to permit the controlling agencies of the Food Administration to be organized by July 1, in order to be ready when the new crop should begin coming on the market, had delayed the beginning of operations by the Grain Corporation until early in September. Over two months had elapsed during which the winter wheat movement was already under way, marked by a price fluctuation of fifty cents per bushel. When at last the stabilized price went into effect, many grain dealers faced a loss on the wheat they had bought. Many farmers were discontented because they could not sell their entire crop at the high prices made by the uncontrolled influences which had dominated when the previous year's crop had been exhausted and the market was without any balance wheel. The crop was slow to move. During the greater part of September the

[1] Estimated from weekly reports to the Food Administration Grain Corporation.

farmers in the principal grain growing sections were apparently unwilling to sell much wheat; especially was this true in the Northwest, where under the stimulus of exceptionally high prices the record-breaking oats crop was being rushed to market. There was also a large corn crop to take care of and corn prices were establishing new high records. The farmer, in consequence of being relieved from the fear of a falling wheat price which in former years had stimulated him to dispose of his crop in the harvest rush, sometimes even to the neglect of necessary farm work, was enabled to take advantage of the unusually favorable weather conditions for fall plowing and seeding. Unquestionably the stabilized wheat price was a factor in forwarding the condition of farm work, which had almost never before been as well advanced as in the fall of 1917; especially in the spring wheat states fall plowing was of unusual extent.

All these influences made for a lighter movement of wheat than the normal crop rush. Nevertheless, the total farm marketings from September 6, when the Grain Corporation commenced business with its stabilized price, up to December 29, were 315,000,000 bushels,[1] against a normal computed average of 270,000,000 bushels for this period. In seventeen weeks, under the Food Administration's fixed price plan, farm marketings had been so enlarged as practically to overcome the deficit below the normal rate for the first two months of the crop year.

A source of constant irritation among the farmers during the 1917–18 season was the interposition of the new Federal wheat standards and Federal supervision of grading and inspection at the primary markets. After ten years of agitation, largely by the representatives of the farming interests, Congress had at last enacted the

[1] Reports to Food Administration Grain Corporation.

requisite legislation, and the Department of Agriculture promulgated uniform wheat standards which were made mandatory upon the grading of all grain moving in interstate commerce. These new grades prescribed rigid standards for moisture content and uniformity of quality, and had the effect of penalizing sharply grain which contained inseparable impurities or which otherwise was below standard. They were injected into the situation at the very beginning of the crop movement for 1917. The unsettlement of the established trade could scarcely have been emphasized more sharply by any other combination than that of a government stabilized price and a government standardized grade replacing the former standard and the former methods. The rigidity of the new system was emphasized by the fixed price differentials between the several grades which the Grain Corporation had found necessary to establish in order to maintain the stabilized price with uniformity and definiteness. Many country dealers, unfamiliar with terminal grading under the Federal standards, in order to make themselves safe, were unduly rigid in the grading of country deliveries. Naturally this gave rise to much complaint under a fixed price system. Gradually these inequalities were smoothed out, and the Food Administration in many cases required the country dealers, under pain of forfeiture of their licenses, to make restitution to the farmers where they had been too severe in their interpretation of grades and dockage. In order to secure the farmers the full value of their grain through competition the Grain Corporation left as wide a field as possible for the purchase of wheat by sample; all grades below No. 3 were bought on the basis of actual worth and not on the basis of fixed price differentials.

XI

The tendency for growers to hold back their wheat for an advance in the market or what they consider an "advance," offers material for an interesting study in popular psychology. The farmer had always hitherto been accustomed to an unhampered market and he continued to look for an unhampered market. The idea that the price would advance through the season was normal with him; it was difficult for him to realize that a stabilized price system would not permit such an advance. The idea of an advancing price dies hard. The reasons are, perhaps, not far to seek; the farmer is close to the growing crop; he sees it being winter killed, or damaged by rust, insect pests, or bad weather, and he reasons that the price *must* advance because of the shrinking supply. Half a year of price stability was too short a period to accustom the farmer to the idea of an unvarying price for his product or to induce him to market it freely. It was an easy transition for him to look to Congress for an increased price.

During January, 1918, severe winter weather and lack of car supply slowed up the farm marketings of wheat; this slowing up was soon to be intensified by a new influence. In January, Congress began an ill-advised agitation for an increase in the guaranteed wheat price for the crop of 1918.[1] The result upon the crop movement was at once apparent: farm marketings for

[1] AGRICULTURAL APPROPRIATION BILL — H. R. — 0054

Reported in House	Jan. 21, 1918
Passed House	Feb. 1, 1918
Referred to S. Com. on Agriculture and Forestry	Feb. 4, 1918
Reported back with amendments	Feb. 11, 1918
Passed Senate	Mar. 21, 1918
Sent to conference	Apr. 1, 1918
Conference report agreed upon	July 6, 1918
Vetoed	July 12, 1918

the season (from July 1) which had been practically even with the average on December 29, had by April 6, fallen over 30,000,000 bushels below the normal for a crop of this size.[1] In spite of the car shortage and bad weather, the farm marketings of corn, oats, and barley, the prices of which were uncontrolled, ran heavily above the seasonal average during the most of the winter period.[2]

The agitation in Congress for an increased wheat price took the form of an amendment to the Agricultural Appropriation Bill for the fiscal year 1918–19. Several amendments were offered, but the one which ultimately prevailed in Congress, and which may be taken as typical, proposed a basis minimum guaranteed price for the 1918 harvest of $2.50 per bushel for No. 2 wheat (the most common grade) at country stations, as compared with the government fair price of $2.20 for No. 1, Chicago basis, for 1917–18. The Senate voted in favor of an amendment in about this form some time during April. To forestall Congressional action and thus anticipate events which might hamper the Food Administration in its task of getting the 1917 crop marketed, President Wilson, under authority conferred by Section 14 of the Food Act, issued an executive order on February 21, 1918, establishing the government guaranteed price for the crop of 1918 on the same basis as the government fair price for 1917–18, namely, $2.20 per bushel for No. 1 Chicago, with appropriate premiums and discounts for other markets and other grades.

Congress was insistent, however, and the Senate conferees succeeded in inducing their House colleagues to agree upon an amendment guaranteeing a uniform minimum price at *all* country stations, irrespective of

[1] Reports to Food Administration Grain Corporation. [2] Ibid.

location or distance from terminals, of $2.40 per bushel for No. 2 wheat of the crop of 1918. The Agricultural Appropriation Bill containing this amendment was passed by Congress on July 6. It was vetoed by the President.

A general 25 per cent advance in freight rates by the Railroad Administration necessitated a readjustment in the government's buying basis for the new year however. Under authority contained in an executive order of June 24th the Grain Corporation increased the prices at terminals, as announced February 21, so as to establish a minimum of $2.00 per bushel for wheat loaded upon railroad cars at country stations in the least advantageously located points in the country, with correspondingly higher prices for places less remote from market. However this is a matter beyond the scope of the present paper.

XII

Proceeding now to a consideration of the problems of the milling industry under Food Administration control, let it be recalled that the abnormal conditions which prevailed in the spring and summer of 1917 had resulted in something approaching a trade deadlock. So long as the government fair wheat price remained undetermined most mills were unwilling to buy freely and confined themselves to comparatively limited operations. During July and August the rate of milling activity for the whole country was less than 75 per cent of the normal for that season.[1] But when the government wheat price was announced, August 30, the mills entered the buying market and as soon as wheat

[1] Even in September some of the large Minneapolis mills were forced to shut down for lack of wheat.

began to move freely from the farms milling activity was resumed. A very large flour output was secured during the last four months of 1917, record figures being established for part of that period.

XIII

The result was that flour prices were greatly reduced and the gaps in the commercial stocks filled up. The agreement mills were able to absorb most of the wheat offerings at the government fair price. The limitation of profits to twenty-five cents per barrel, reënforced by the declaration of the Food Administration that profits in excess of that figure for the year's business would be deemed unreasonable, had the effect of keeping flour prices in most parts of the country approximately on the basis of the government price of wheat. During the period of vicious speculation of the spring and summer of 1917, before the regulation of the Food Administration became effective, flour prices had ranged from $12.00 to $16.00 a barrel at the mill door. Under the régime of control wholesale flour prices were reduced to from $10.00 to $11.00 a barrel for most mills. This was an achievement of the first importance, and, whatever the offsets and inadequacies, is sufficient to justify the work of the Food Administration and the Milling Division.

This method of price regulation, however, based upon cost of production plus a stipulated margin of profit per unit of output — a margin which soon came to be interpreted as a minimum rather than a maximum — was clearly open to objections. It did not promote efficiency of operation; it offered dishonest and unpatriotic millers opportunity and temptation to pad their reported costs. The original suggestion of an operating

differential, to include cost as well as profit, limiting the cost figure to seventy-five cents per barrel,[1] had been dropped because of the extraordinary range of costs within the industry, embracing concerns from the largest to the smallest. The profit regulation as adopted was a simple expedient of a rough and ready kind designed to meet the necessities of the situation. It was, perhaps, the only method of regulation which offered a fair chance of success. Tho surprisingly effective in the main, it led, none the less, to serious difficulties.

XIV

Some unexpected circumstances rendered the problems of regulation more complicated than had been expected. Fundamental to the entire situation was the fact that the wheat crop of 1917 was the smallest in years, smaller even than had been estimated in August when the Food Administration announced its policies of control. One effect of such a short crop was to abridge still further the scanty range of competition which the regulation had left undisturbed. The crops of England and France were also much smaller than had been expected and the gravity of the export problem was correspondingly increased. With added pressure resulting from the need of prompt flour shipments abroad it became necessary to stimulate milling activity to as rapid a rate as possible. The Food Administration had originally hoped that it would be possible to operate the mills at a fairly even rate of production through the year, but in fact a very large part of the flour production of the mill year — something like 52 per cent — had to be crowded into the four months, September, October, November, December.[2] Yet throughout this period

[1] See page 47.

[2] From estimates by U. S. Food Administration, Milling Division.

domestic buying demand was insistent and far exceeded the capacity of the mills to keep pace with it.

A marked reduction in operating costs resulted from this high rate of milling activity. A peculiar consequence was that many mills found it difficult, almost impossible, to reduce their prices for flour and feed rapidly enough to keep their profit margins within the allowable maxima — twenty-five cents per barrel on flour and fifty cents per ton on feed. Flour prices, tho tending downward, did not at once fall to a basis strictly commensurate with the lowered wheat price established by the Wheat Price Committee. Wheat feed prices, especially, failed to recede; indeed they tended to advance, reflecting the high prices then current for feeding stuffs generally. Corn, oats, and cotton seed cake and meal ruled at very high prices towards the end of 1917 for various reasons. The question arose whether it would be wise to attempt to force down the price of mill feed in view of the high prices of competing feedstuffs and the scanty supply of mill feed resulting from the short wheat crop. Of course, any reduction in feed prices would tend, *pro tanto*, to increase flour prices. After much deliberation it was finally decided to issue rules (promulgated by the Milling Division, December 18, 1917) fixing maximum prices for mill feeds. These prices were to be calculated by each mill and were based definitely upon the cost of wheat at the mill door; the maximum wholesale price per ton for bran, in car lots bulk at mill, was set at 38 per cent of the average cost to the mill of a ton of wheat, as calculated from the prices paid during the previous month; fixed differentials based on the bran price were established for the other mill feeds.

This attempt to control feed prices proved largely abortive. To begin with, the Milling Division specifi-

cally exempted outstanding feed contracts from the operation of the rule, which therefore did not become effective as to prohibition upon shipments at the old prices until a period of time had elapsed (from two to six months, as it proved) sufficient for the mills to complete the fulfillment of existing contracts. No adequate reason has been given, nor is any forthcoming, why outstanding feed contracts should have been exempted from the operation of the rule as promulgated; especially since on the very same day a rule was announced which required the cancellation of a very considerable proportion of the outstanding flour contracts. In the second place, the 38 per cent rule referred only to bulk prices in car lots, whereas many mills did a considerable feed jobbing and even retail business, especially those in the country districts. Higher prices were charged for feed sold on a jobbing or retail basis and the permissable margins for this type of service were very inexactly defined or understood. The addition of the cost of sacks increased the average price of feed by four or five dollars a ton. Again, very little attempt was made to control the activities of the feed jobbers; in the nature of the case it was difficult to bring them under effective regulation. The Milling Division regarded them as beyond its province and the other regulating agencies of the Food Administration, with the exception of the state Food Administrators, were slow to develop the machinery of control. In the face of the blighted corn crop of 1917 and the almost complete breakdown in railroad service, feed dealers could get almost any prices they asked during the winter of 1917–18. Consequently complaint of "profiteering" was very general, especially in the wheat growing regions, where the farmers felt aggrieved because, while the price of wheat had been reduced from the high quotations prevailing dur-

ing the summer of 1917 by the action of the Food Administration, mill feed prices had remained high and in many cases had increased, even after the issue of the 38 per cent rule. There was also complaint on the part of those mills which did keep within the 38 per cent rule against those which did not; western feed was frequently selling in eastern markets at higher prices than the superior local product. It was not until towards the end of the winter that the Food Administration took any adequate action to restrain profiteering in feeds. The Enforcement Division (presently to be described) was able to do some effective work, especially in the Southwest, where conditions had been particularly bad, and considerable improvement was brought about through coöperative action by millers, jobbers, state Food Administrators and other interested parties. The difficulties of the situation were admittedly very great, but on the whole the Food Administration cannot be credited with conspicuous success in its handling of the mill feed problem.

XV

Coincidently with the issue of the 38 per cent feed price rule, the Milling Division promulgated a new rule governing the ratio of extraction of flour and feed. The September and October reports of the agreement mills had shown a prodigal use of wheat per barrel of flour produced; too much feed and too little flour were being made from a given amount of wheat. The reason was that the mills were making a relatively large proportion of expensive "high patent" flours which yield a large amount of offal as compared with the cheaper grades of "straight" flour. By the new rule the amount of wheat that might be used in making a barrel (196 pounds) of flour was reduced from a maximum of 285

pounds for the better grades, as originally established,[1] to a maximum of 264 pounds for the same grades, with appropriate differentials for the lower grades — a rate of flour extraction equivalent to 74 per cent. This was avowedly a measure for conservation; the original maximum of 285 pounds, adopted in August, was, perhaps, the best that could have been fixed at the time. The great variation in character of mechanical equipment and milling skill between different mills made it impossible to insist at the outset upon more rigid standards of extraction. But the Milling Division had in the meantime systematically urged and taught the backward mills, by appropriate descriptive matter, blue prints, and the like, and through a staff of mechanical experts, so to improve their standards that the effectiveness of the entire industry was brought measurably up towards the best practice — another notable achievement. It was only with the progressive improvement in mechanical equipment, which was thus stimulated, and the increasing realization by the millers generally of the need of regulation and their increasing willingness to coöperate, that the 264 pound rate became possible. Under this regulation the amount of wheat used per barrel of flour was greatly reduced.

Of greater significance, perhaps, than the increased rate of extraction was the prohibition imposed by this same rule upon the separation of flour into several grades — patents, clears, straights, etc. After the effective date of the rule (December 25, 1917) not more than 5 per cent of "low grade" might be removed from the flour as ground; the remaining 95 per cent had to be sold as a uniform "straight" flour.[2] Of course, this

[1] See page 10.

[2] This was one of the measures which Mr. Hoover had advocated from the first; the other was the establishment of a fixed operating differential to include millers' costs and profits.

played havoc with established brands, since the product of all mills was now placed upon a basis of uniformity, except, of course, as they used different kinds of wheat and could command varying grades of milling skill. However, it immensely simplified the problem of price regulation, since a standard flour now replaced the multiplicity of grades and brands which had formerly baffled attempts at direct price control.[1] Thus the way was passed for the next forward step in the technique of food administration in the milling industry.

XVI

This was not to come at once, however. Further experience was necessary under the "cost plus" method of price regulation, and to this we must now give attention.

Towards the end of 1917, many mills found themselves in possession of profits considerably in excess of the allowable maximum of twenty-five cents per barrel. Some had already even exceeded this rate on their entire accountable allotment for the entire season. This situation raised the question of the proper interpretation of the profits rule. Did twenty-five cents per barrel maximum profit mean twenty-five cents per barrel in each month, or twenty-five cents per barrel figured on the whole season's operations? At the outset the Food Administration took the view that if in any one month the profits of an individual mill were in excess of twenty-five cents per barrel, its selling price should be forthwith reduced so as to bring its current profits within the twenty-five-cent maximum; profits in excess of this figure were not to be accumulated in the earlier months

[1] Subsequently (about March 1, 1918) even the separation of the 5 per cent of low grade was prohibited. Thereafter all flour made was required to be 100 per cent straight flour.

against decreased profits or possible losses expected to occur in subsequent months. However, the concentration of the period of maximum grinding within the first four or five months of Food Administration control indicated that profits would perhaps be very meager in the lean months to come.[1] In other words the milling industry, always a seasonal business, was unusually compressed during this year. So great, moreover, was the variation in rate of milling activity and, therefore in costs and profits, from month to month for individual mills, that the Food Administration was forced to the conclusion that the profit limitation could not be applied strictly to each individual month or to any short period. Meanwhile the position was being strengthened of those who maintained that the limitation of profits to twenty-five cents per barrel was equivalent to a virtual guarantee of twenty-five cents per barrel as a minimum return.

XVII

Any method of regulating the price of flour upon the basis of cost plus stipulated or maximum profit is predicated upon a thoro audit of millers' costs. Partly to perform this function and partly for other reasons, the Milling Division established at its headquarters in New York an auditing department. The task, obviously, was a large and difficult one. The duties of the department were confined at first to checking the monthly cost reports, at the New York office, as regards clerical correspondencies and discrepancies. Its energies were also devoted in part to working out a system of flour mill accounting designed primarily for the use of small mills and recommending its adoption by the

[1] Over 60 per cent of the total flour output of the United States for the season July 1, 1917, to June 30, 1918, was produced in the five months, September, October, November, December, January.

trade (an important reform measure, it may be added), and to exercising a general supervision over the reporting mills by correspondence. This was useful work and accomplished some positive results. Little or no actual field work or effective check on loose or dishonest practices was attempted, however. The Milling Division took the view that it was not its business to police the industry and that to discipline millers or attempt anything of the sort would perhaps defeat that spirit of voluntary coöperation which it was anxious to develop. It declined to avail itself of the facilities for independent auditing offered by the Federal Trade Commission. Towards the end of the winter the various divisional offices of the Milling Division, one in each of the nine milling centers of the United States, employed a limited number of inspectors and accountants to visit the mills, check their yields, and assist them in their accounting problems.

Not a few millers took advantage of the situation and loaded their cost reports with improper items. Some came to believe that they would never be investigated or molested if they should pad their cost reports. Such items as new construction and equipment, largely increased salaries to officers (in some cases made retroactive to include a fiscal period closed before the beginning of Food Administration control), bad debts of ancient standing, excessive depreciation charges, losses on miscellaneous outside investments, etc., were added to current costs of production and so charged to the consuming public. Under the conditions of demand which then existed prices inflated in this way could easily be obtained for the flour; in fact, flour could be sold for almost any price, limited only by the flexibility of the seller's conscience.

XVIII

A not infrequent method of evading the spirit of the agreement was that of setting up a "jobbing department," selling the whole output of the mill or a large part of it to the jobbing department at a profit within the twenty-five cents per barrel rule, and then getting all the additional profit possible from so-called jobbing operations, limited only by the more liberal jobbing regulations, which authorized profit margins varying from twenty-five cents to seventy-five cents per barrel, according to the nature of the service performed. Out of some 1500 mills reporting their costs to the Food Administration under the voluntary agreement 439 had separate jobbing departments on June 18, 1918. In many cases these jobbing departments were new creations, designed to cover up profits in excess of the allowable maximum. It was an undoubted weakness in the rules which permitted and perhaps even suggested the creation of these bogus jobbing departments.

On the other hand it must be recognized that many mills which had regularly done some jobbing and retailing did not take advantage of the permission to segregate their jobbing business from their merchant milling operations. Indeed, it had even been hoped and expected that the larger mills which had segregated their jobbing business in the past would, for Food Administration purposes, consolidate their manufacturing and selling costs under a single return and not take a jobbing profit in addition to their milling profit. A maximum profit of twenty-five cents per barrel was considered ample return upon the entire business of such concerns — jobbing and merchant milling combined. Many of the very large mills did, in fact, consolidate their milling

and jobbing returns, especially the Minneapolis mills which operate extensive distributing warehouses. Not so many mills agreed to handle their business in this manner, however, as had been hoped.

XIX

The effective control of this and other kinds of abuses was hindered by some shifting of jurisdiction between the Food Administration offices at Washington and the Milling Division headquarters at New York, and perhaps by the fact that the Milling Division itself was administered by millers engaged in active business operations and having the point of view of private interest rather than that of the unfettered public official. In November, 1917, the Food Administration established an Enforcement Division at Washington whose duty was to see that the regulations of the Food Administration were enforced. The difficulties of this task were admittedly very great; the inspection of the millers' monthly cost reports was for some time confined to a mere statistical examination and audit, without serious inquiry into the underlying facts. In this matter, as in all the problems of regulation, the nature of the task became apparent only with experience; the best mode of dealing with the situation could only be developed gradually.

In February the activities of the Enforcement Division were extended to the flour milling and flour jobbing regulations. A widespread inquiry was made as to the methods followed by the millers in the preparation of their monthly cost reports and many cases of irregularity and some of fraud were detected. Largely as a result of these investigations a marked reform was brought about: the millers in general responded will-

ingly to the new and more careful methods of regulation initiated by the Enforcement Division. For the purpose of getting comprehensive and fairly detailed information all mills of a daily capacity of 75 barrels and over were required to submit a consolidated statement covering the operations of the first seven months of operations under Food Administration control—September, 1917, to March, 1918. This was followed by a similar consolidated report on the three months, April, May, June, 1918—thus completing the portion of the season's business for 1917–18 coming within the period of control. These statements followed closely the general form of the original monthly cost reports, with the addition of a certain amount of itemization deemed essential, e. g., under the captions: milling expense, selling expense, general expense, reserves, jobbing business, etc. At the same time definite instructions [1] were issued designed to clarify the whole accounting problem and indicating the basis of profit determination to be followed in the settlement of the year's accounts between the millers and the Food Administration. Millers were permitted to correct in the consolidated statements errors and misstatements which had appeared in the earlier monthly reports, without prejudice.

Those mills, relatively a small per cent of the total number, whose reports indicated that their profits on the season's business had been in excess of the maximum allowable rate of twenty-five cents per barrel, were required to give up their excess gains, either by the sale of flour, to the government at a nominal price, or by setting up an equivalent credit to the government's purchasing agencies on their books. The Enforcement Division also undertook a thoro-going audit of the accounts of many of the larger mills; a considerable

[1] Milling Division Circular No. 1310, May 15, 1918.

number of mills, on their own initiative, called in the services of auditors and chartered accountants in the preparation of the consolidated statements. The opportunity to remodel their statements was availed of in good faith in most cases, and served to bring about a general conformity to the spirit of the regulations without resort to stringent measures. The number of cases of positive deception or deliberate profiteering proved, in the end, to be relatively small.

XX

One of the most troublesome questions in the whole problem of profit regulation and one which occasioned a great deal of discussion and much misunderstanding concerned the method of handling the items of income tax and excess profits tax in the millers' monthly cost reports. Through the representations of overzealous members of the Milling Division in August and September, 1917, many mills were induced to enter the voluntary agreement with the understanding that the profit limitation of twenty-five cents per barrel meant that they would be permitted to make twenty-five cents per barrel net after all deductions, including taxes. In November the Food Administration through the Milling Division issued a positive declaration to the contrary, so far at least as the excess profits tax was concerned. None the less the idea of a net divisible profit of twenty-five cents per barrel persisted and many mills, including some of the largest, charged in their monthly cost reports as expense items against current costs of production reserves set up in anticipation of excess profits tax payments.

The act by which the excess profits tax was imposed was enacted on October 3, 1917, very shortly after the

milling regulations had been instituted. Few persons were at once aware of the significance and importance of this tax. Altho the earlier act of March, 1917, contained an excess profits tax, that in the later law was much more far-reaching. It was inevitable that adjustment to it should be difficult and that unexpected problems should arise.

Under the legislation of October, 1917, the procedure as to allowing excess profits taxes and income taxes also to be charged against cost of production in the accounts of mills would seem, as a matter of principle, to be clear. Excess profits and income taxes are to be regarded not as items of expense — not as charges which are expected to be passed on to the consumer — but as taxes to be paid out of the earnings and incomes of those on whom they are directly levied. In other words, all such taxes should come out of income and should operate as deductions from income. The Food Administration, even tho it limited the profits of millers to a maximum of twenty-five cents per barrel, in consistency was obliged to hold that the profits were taxable like other producers' net earnings.

Nevertheless, there were unexpected and unequal results from the application of this principle, especially as regards the taxes on excess profits. They ensued more particularly from the circumstance that the taxable year for which the mills made their tax returns were not uniform. Many mills made returns for the calendar year 1917; some for a fiscal year running from July 1, 1917, to June 30, 1918; others for a fiscal year from September 1, 1917, to August 31, 1918, and so on. A mill which made its return for the calendar year might easily be in a position — and this happened for a considerable number — in which the whole of its net earnings after September 10, 1917, became subject to a tax

of 60 per cent. This high rate of tax became applicable if during the earlier part of the year, before September 10, its profits had been over 33⅓ per cent upon its invested capital; since under the provision of the Act of October 3, 1917, all earnings in excess of 33⅓ per cent on capital became subject to a tax of 60 per cent. Many mills had made such large profits during the earlier part of the year that their ensuing profits became taxable at this high rate. At the same time, during the period after September 10, 1917, the profits of the mill(s) were restricted, being subject to the regulation by which they were not to exceed twenty-five cents per barrel, and it was these "restricted" profits that became taxable at the 60 per cent rate. As compared with a mill in this position, another whose taxable year was not the calendar year, but ended on June 30, 1918, or August 31, 1918, might be taxed lightly upon its profits earned during the period of regulation. Such a mill would pay a rate of tax based upon its earnings for the taxable year 1917–18, presumably kept within moderate bounds by the regulations of the Food Administration, and therefore presumably taxed at a low rate.

Other unexpected and apparently inequitable results ensued from the operation of the excess profits tax law. Some were connected with the different rate of capitalization of different mills, due to their varied history (in the past). These brought it about that mills with low capitalization were generally more heavily taxed than mills with high capitalization. Certain mills again, unlike the majority (?), had made small profits during the first half of 1917 and, having been assigned a heavy grind in the autumn of that year, made larger profits during the food regulation period, with a consequent tax rate different from that of their competitors.

This whole problem of the incidence of the excess profits tax and income tax was referred by Mr. Hoover to a commission headed by Professor F. W. Taussig, appointed in March, 1918, to consider some of the problems of regulation of the milling industry and to make suggestions for improvements in the regulations already issued and for the recasting of the whole method of regulation for the crop year beginning July 1, 1918. This commission gave much attention to the question raised by the interposition of the excess profits tax upon the milling regulations issued by the Food Administration. It was impressed by the inequalities resulting from the rigid application of the Food Administration's announced intention not to recognize excess profits tax payments as items properly chargeable against costs of production by the mills in their accounts with the government, but it felt itself unable to attempt to readjust these conditions or to bring about identity of treatment for the different mills. It therefore reported that excess profits taxes, and income taxes also, should not be regarded as items of expense but as public levies which must come out of the profits of producers, as had been the normal case with all such taxes. The Food Administration acted promptly upon this recommendation and on May 15, 1918, announced to the trade that these taxes must be borne by the producers and not charged to the public. In one respect, however, the discussions before this commission of inquiry brought about a modification and readjustment in the operation of the excess profits tax. As has already been explained, many mills made profits larger than the allowable maximum during the closing months of 1917 because of the rush of grinding operations at that time. These large profits, in excess of twenty-five cents per barrel, were necessarily treated by the Food Administration

as "paper profits"; since, if maintained through the season, i. e., until June 30, 1918, they became subject to refund in one of the forms already indicated. It was possible, however, that the Treasury Department would consider the profits made during this period as taxable to their full extent, irrespective of the circumstance that the Food Administration would compel mills to cut them down sooner or later. As a result, however, of conferences between legal representatives of the Food Administration and of the Treasury Department, an arrangement was made by which these "paper profits" (in excess of twenty-five cents per barrel) were considered as not necessarily part of the taxable income of the mills, but as subject to readjustment and abatement after proper verification and certification by the Food Administration, subject to suitable regulations by the Treasury Department.

XXI

The results of the year's milling operations under the *cost plus* method of regulation, while as satisfactory, perhaps, as could have been expected, indicated abundant opportunity for improvement. It was possible to formulate new plans of regulation with greater confidence because of the circumstance that the minimum price to the producers for wheat of the 1918 crop was a matter of formal government guaranty — a feature entirely lacking in the 1917–18 program. To this fundamental measure the entire food program, so far as wheat and flour were concerned, could be adjusted.

The probability of a continuance of the war for at least another twelve months made it prudent to enforce a continuing measure of conservation of wheat flour in the United States during the crop year 1918–19, in spite

of the increasing stocks of wheat in Australia and the Argentine and the very large prospective crop in this country in 1918. This implied a continuing limitation upon competition in the manufacture and sale of flour. The large and fairly evenly distributed wheat crop, taken in conjunction with the fact that the functions of the Grain Corporation became somewhat different under the price guaranty arrangement, made it practicable to relax somewhat the restrictions upon the grain trade and to allow a wider range of competition there than had been possible with the short crop of 1917.

It is beyond the scope of this paper to enter upon a detailed exposition of the new arrangements which became effective in July, 1918. Suffice it to say that the Grain Corporation announced a schedule of wheat prices which it was prepared to pay at the principal terminal markets, based upon the minimum government guaranty of $2.00 to the farmer,[1] so arranged that the producers in the least advantageously situated districts could realize approximately $2.00 per bushel for their wheat at country shipping points. The control by the Grain Corporation of country elevators, as to retention and diversion of shipments,[2] was relinquished and shippers were permitted to sell to whom they would. The mills were also allowed to buy from whom they pleased and to pay any price they pleased; of course, the lower range of competitive bidding was established by the offer of the Grain Corporation to pay at least the government guaranteed minimum. As a matter of fact, removing the fetters from the free play of commercial initiative led to a premium of several cents per bushel over the government minimum being paid for wheat during the early weeks of the new crop movement, in

[1] The government guarantee then was $2.00; the President by proclamation subsequently made the figure $2.20.

[2] See page 18.

spite of a movement the size and rapidity of which broke all records.

The principal limitations placed upon the mills affected the prices which they might charge for their products, the quantity of wheat which might be used in making a given quantity of flour, and the kind of flour which might be made. The Food Administration had got over its scruples concerning its own powers as to price-fixing and imposed upon the mills a fixed operating differential or margin — a figure by which the combined prices of flour and feed might not exceed the price (reckoned on the government purchasing basis) of an equivalent amount of wheat. The ratio of extraction was continued at 74 per cent (i. e., 4.4 bushels of wheat per barrel of flour), and the differential for the combined prices of a barrel of flour and the corresponding amount of offal (about 68 pounds) above the price of 4.4 bushels of wheat was set at $1.10. In other words the differential of $1.10 per barrel of flour included costs and profits. Thus, if the government price for No. 1 Northern wheat at Minneapolis were set at $2.20 per bushel, the price of 4.4 bushels would be $9.68, and the combined prices of flour and feed at the mill door might not exceed $10.78; further, if the government named price for mill feed (at say 41 per cent of the price of wheat) averaged $30.00 per ton, or one and one-half cents per pound, at that point, the maximum price for flour at the mill door would be $9.76. These regulations were easy to police since prices could be readily checked by the reports required from flour jobbers and buyers. Furthermore, they were compulsory; there was no element of voluntary agreement in them, as with the arrangements of 1917–18. Hence it became possible to dispense with the elaborate and expensive machinery of

the Milling Division, which accordingly went out of existence. In its stead a milling section, with a representative miller at its head, was established in the new Cereal Division, of which the Grain Corporation also became a part.

It is too early yet to form any conclusion as to the efficacy of the new plan of regulation, but at this writing (August, 1918) it seems to be working well. There has been very little, if any, complaint as to inability of farmers to secure the full guaranteed minimum price which the Grain Corporation stands ready to maintain at all times and in almost all places. If, through lack of competitive bidding at local points, farmers fail to secure the full government price, the Grain Corporation will accept direct consignments, paying the shipper at least $2.00 per bushel f. o. b. shipping point, less commission. The fixed differential mode of controlling the price of flour has the advantage of simplicity; it is easily understood in general principle; it definitely establishes maximum prices. Its application was possible only with the fixed base price of wheat to the producer and the requirement of a uniform grade of 100 per cent straight flour;[1] the fixed wheat price became the datum point from which the prices of flour and feed could be reckoned; under the "100 per cent straight" rule "flour is flour," while before this requirement there were as many different grades as there were mills.[2]

Summary and Critical Estimate of Results

Broadly speaking, the problems of the Food Administration at the outset of its career in the regulation of the wheat and flour trade were: (1) to attain price stability, for the protection of both producer and consumer; (2)

[1] See page 45. [2] See page 44.

to enforce conservation, in order both to guard necessary supplies for home consumption and to save for export; and (3) to distribute the available wheat to the mills so as to maintain relative equality among them and secure their milling coöperation. How far did the Food Administration realize its aims in meeting these problems in the crop year, 1917–18 ?

XXII

1. The stabilization of wheat and flour prices speaks for itself. It is a matter of record and represents an achievement of the first importance. The efforts of the Food Administration to control and eliminate speculation in wheat and its products may be said to have been almost completely successful. The grain exchanges at once complied with the request to suspend dealings in wheat futures; the spot market practically disappeared under a system where the mills did all their buying in terminal markets through the Grain Corporation. The licensing of all elevators and mills having storage facilities, and the limitation of the storage period to thirty days, put out of business the line and terminal elevator companies, so far as the speculative handling of wheat was concerned. More effective still was the practically universal agreement entered into by the millers not to pay for wheat a price in excess of the fair price adopted by the Food Administration for government purchases. This fixed the upper limit for prices offered by domestic purchasers; export buying was confined to the Wheat Export Company, the Grain Corporation, and the representatives of neutral nations — all acting in concert. There was no place for price speculation; the almost universal control by the Grain Corporation of the movement of wheat from farm to mill and to the sea-

board left no scope for speculative activity; it simply became an unremunerative business.

Only to a slightly less degree did the Food Administration succeed in eliminating speculation in flour. All licensed mills (some 6000 in total) were prohibited from taking orders for flour more than thirty days in advance of shipment, and from knowingly selling to any buyer such quantities of flour as would give him more than enough for his requirements for a reasonable period of time (defined by rule as thirty days). A national flour distributor was appointed, who got the flour jobbers in the most important consuming centers to agree upon maximum profit margins, based upon pre-war standards. Fictitious sales between a number of brokers or other intermediaries in the distributive chain, and resales within the trade with successive price enhancements, were strictly prohibited. Altho there were sporadic cases of violations of these rules, the response of the trade in general was excellent, and flour was kept moving in as straight and direct a line as possible between producer and consumer. After the first few weeks of Food Administration control there was a marked reduction in the price of flour at wholesale and this reduction was generally reflected in retail and bakery prices. The mill door price of flour at Minneapolis remained fairly constant at a figure around $10.00 per barrel from early in November, 1917, until the close of the crop year, with a tendency downward rather than upward.

Of course, the wisdom of the whole policy of price stabilization may be, has been, questioned by some economists, who express skepticism as to its practical utility as a war measure. Without entering upon a discussion as to the relative efficacy of the system of price variability and price fixation as types of economic organization in war time, a few words may not be out of

place at this point as to the desirability of a stabilized market in the wheat and flour trade in 1917.

The case against price-fixing, i. e., the establishment of maximum prices, is easily stated.[1] It is urged that to fix a maximum price for a commodity defeats, or at least retards, the normal equilibrium of demand and supply; that by fixing the upper limit to the figure which the producer may expect for his goods, production is, *pro tanto*, checked at the very moment when it needs to be stimulated. Leave the market alone, let buyers pay what price they will, and the price of the commodity in question finds its natural place in the whole scheme of prices and settles at that point which will exactly equate the supply (or production) to the demand, as measured by its price relative to all other prices whatsoever.

The matter is not so simple as this, however. The argument assumes a degree of flexibility in consumers' demand schedules and in the organization of production, as little in accord with the facts as is the tacit implication that the psychological aspect of extreme price variations is a matter of no consequence and may safely be ignored. Nor is it necessarily true that, once a policy of price-fixing is embarked upon there is no logical stopping place — that all prices, broadly speaking, must be worked out in nice adjustment to each other. A more moderate statement, and one nearer the truth, is that all interference with the normal operation of economic forces is to be recognized as an evil and that such interference should proceed no further than is necessary to attain the end absolutely required. Each case must be met as the necessity arises, and such action taken as the totality of social forces dictates.

[1] For example, see W. C. Clark: "Should Maximum Prices be Fixed?" Bulletin of Queen's University (Canada), 1918.

However all this may be as to price-fixing in general, it should be emphasized, in order to prevent further misunderstanding, that in the wheat and flour market in 1917, the *normal* forces influencing the price system had utterly broken down. The complete disruption of the channels of transportation between the world's more distant wheat fields and the great consuming markets of western Europe, a regrettable incident of the war, had thrown upon the crops and markets of the United States and Canada the burden of sustaining the whole impact of a demand for breadstuffs probably unparalleled in modern times. It was a burden too great to be sustained and the American marketing system, excellent tho it had proved itself in peace times, collapsed under the strain. It was absolutely imperative that some new and stabilizing organization be devised to take the place, temporarily, of this broken-down marketing machinery and that some price be established which should outlast the vicissitudes of a single month. The new wheat crop was smaller even than the short crop of the year before, the visible supply was at the vanishing point, the hedging facilities of the exchanges offered no real protection to the legitimate trader, the supply side of the market was helpless and disorganized, while the demand side was leagued into two powerful organizations as represented by the Wheat Export Company and the American millers. The distributing trades were in a deplorable state of speculation occasioned by the extreme price fluctuations of the spring and summer. Those consumers were hoarding flour who could afford to, while those who could not were clamoring for a reduction in living costs. American industry was passing through a series of strikes, wage disputes, and labor adjustments which seriously threatened to impair our whole national efficiency in prosecuting the war. In

these conditions a firm insistence that something be done to restore economic order, that some workable arrangement be devised to inspire confidence and quiet apprehension and alarm, was of far greater help to the nation than an attitude of laissez faire could possibly have been.

Another phase of the matter cannot be too greatly emphasized. This is the bad economics and worse psychology of the laissez-faire method of conservation by leaving things alone until mounting prices should enforce conservation upon those elements of the community who can least afford to pay the price and who, presumably, most need the goods. This is conservation with a vengeance; to quote Mr. Hoover's words, "it is conservation for the rich at the expense of the poor." The experience of April and May, 1917, should be a sufficient warning as to what might have been expected to happen had the restraining influence of the Food Administration been withheld. The unified and insistent buying of the Allies and the more or less panic-stricken efforts of American distributors and consumers to provide themselves with flour, would probably have been repeated with variation through the entire harvest year. The short crop would probably not have lasted more than a few months in these conditions; long before another harvest could have been gathered wheat and flour prices would probably have touched undreamed-of levels. All the results of unbridled speculation might well have been expected, with what consequences upon the temper of the industrial and consuming community can easily be surmised.

The one large class in the community who might conceivably have gained from such a state of affairs is the farmers. Yet even here it is doubtful whether the farmers' interests have not been better served by the

maintenance of a fixed price for wheat throughout the 1917–18 crop year. It must always be remembered that in enacting the Food Act in 1917, Congress had guaranteed the farmers a minimum price of $2.00 per bushel for wheat of the 1918 harvest. The Food Administration's "fixed price" for 1917–18 ($2.20) was determined by the Wheat Price Committee with due consideration of the guaranteed minimum for 1918–19. It could not be *less* (than $2.00) if hoarding was to be checked; nor could it well be very much *more* than the *probable* minimum for 1918–19. As matters turned out, the guaranteed price to the producers in 1918–19 was practically the same as the Food Administration's fair price in 1917–18. It must be remembered also that in September, 1918, President Wilson announced by proclamation the minimum guaranteed price for the crop of 1919 at practically the same figure as for the 1918 crop and that of 1917. Had the price been left uncontrolled in 1917–18 it might conceivably have gone to so high a point that many farmers would have profited unduly as compared with other classes in the community. From the point of view of social welfare this was a contingency to be avoided as much as profiteering by any one else. And had the price gone to a very high figure it would probably have proved extremely difficult to place the limit of the actual guaranty for the 1918–19 season at a point very much lower than what the farmers would have come to regard as normal. In these conditions there is no assignable limit to the amount of wheat which might have been planted in 1918–19, to the detriment of other crops and the live stock industries, to say nothing of the burden which might have been placed upon the government in making good its promise to guarantee to every producer the minimum price.

There was much clamor in some quarters in 1917 as to the inadequacy of the Food Administration's fair price of $2.20 per bushel, Chicago basis, and its probable repressive influence upon wheat planting for the succeeding season. The adequacy of this price, " fixed " as a minimum in August, 1917, and maintained as a maximum until the new crop year, beginning July 1, 1918, is perhaps best gauged by the fact that the acreage planted to wheat with the guarantee of $2.00 and some expectation (realized in September) of a continuance of the $2.20 price, was, with a single exception, the largest ever known; the seeding of winter wheat established a new acreage record. The Canadian price, which had previously been $2.40 per bushel, was lowered to $2.21 for No. 1 Dark Northern upon the announcement of the Food Administration's fair price of $2.20 in August, 1917; yet in 1918, Canada planted the largest wheat acreage on record in spite of a serious labor shortage. In the matter of a fixed price the Food Administration seems to have seen not less of the truth than its critics but more. The farmers received much more for their wheat over the season in 1917–18 than they had in any previous year, in spite of the " sky-rocketing " prices of May, 1917. The achievement of the Food Administration was to secure to the producer more nearly his " money's worth " than would have been possible under a system of variable prices and time speculation. This, coupled with the reduction of milling profits and the narrowing of trading margins all along the line, brought the producer's price and the consumer's price much closer together than they had been in recent years.

XXIII

2. In its conservation program the Food Administration cannot be said to have been as successful as in the maintenance of the fixed wheat price and the stabilization of flour prices. The terms of the problem as it appeared in August, 1917, were about as follows: (*a*) The United States had come into the new crop year, 1917–18, with stocks of wheat and flour from the old crop equivalent to about fifty to sixty million bushels — less than a month's requirements for our own population. (*b*) The new crop was very disappointing; it has been variously estimated at from 610,000,000 to 650,000,000 bushels. (*c*) European harvests were even more disappointing, and the partial failure of the Argentine wheat crop of 1917 and the ensuing embargo upon exports threw an even larger burden upon the United States and Canada than had been expected. (*d*) Because of the small stocks and short harvest in this country it was imperatively necessary to plant as large an acreage as possible in order to insure sufficient supplies for the new year. This meant the subtraction of a very large amount of wheat for seed — probably not less than 85,000,000 bushels.

The net result of all this was that if our normal rate of consumption should be maintained there would be very little surplus for export. In other words, almost the entire export quota would have to come out of a saving from their normal consumption by the American people. Measures had to be adopted, therefore, which would insure this saving, and yet prevent any part of our people from going hungry. Several courses were open:

(1) Rationing.

(2) A laissez-faire policy, leaving the Allied buyers free to enter our markets and bid up prices for our own

people as they did in May, 1917, to the point where the necessary saving in consumption would be secured through the medium of excessively high prices.

(3) An appeal for voluntary conservation and restriction of consumption by those elements in the community which could best afford to forego the use of wheat bread.

(4) Commandeering of the necessary supplies by government action.

The first two methods were equally impossible — the first because of the extraordinary complexity and expensiveness of the task, in a country as large as the United States, and because of its repugnance to American methods, and the second for reasons which have just been indicated.[1] At the outset the Food Administration announced its confidence in the efficacy of self-imposed restrictions on consumption by individual action, and for the first few months it relied almost wholly upon voluntary conservation to effect the necessary saving in food consumption. A widespread propaganda was instituted for the conservation of wheat, meat, fats, and sugar, and the billboards were mobilized in the campaign against waste and extravagance. The results, so far as wheat and flour were concerned, were upon the whole, disappointing. In justice it should be said that there was a very considerable saving of wheat flour by many persons in the community, a saving which represented conscientious and idealistic service. This appears to have been more than offset, however, by increased consumption on the part of certain sections in the community which were enjoying unwonted prosperity, growing out of the flush of war activity and high wages. Wheat flour was, thanks to the stabilized price, the cheapest food on the market, and there seems to have been a large increase in its use by people who, perhaps, had never had adequate nourishment before.

[1] See page 5, supra.

To expect conservation in these conditions was like trying to lift oneself by one's bootstrap. Towards midwinter it became apparent that the unprecedented rate of milling activity in the flour industry was not enough to enable us to fulfill our self-imposed obligation to our European allies. It was seemingly impossible to fill up the gaps in our own commercial stocks; demand continued unabated. One underlying reason was that there was a considerable amount of hoarding of flour by consumers who had laid in stocks during the preceding spring and summer and who still continued to buy all they could get.

The export situation became very serious; winter weather of unprecedented severity and duration, coupled with railroad and steamship congestion, and breakdown in the coal supply, had by January led to a serious falling behind in our rate of flour shipments abroad. In these circumstances some decisive action was imperative. It came early in the new year, shortly after Lord Rhondda's appeal to America to send more wheat to meet Europe's needs. On January 10, 1918, President Wilson issued a proclamation appealing to all loyal citizens to make fresh sacrifices for the Allied cause by reducing still further their consumption of essential foodstuffs vitally needed for shipment abroad. This appeal was backed up by wheat conservation rules issued through the Milling Division of the Food Administration, January 15th, and effective February 15th, which required the purchase of "substitutes" (corn meal, barley flour, rye flour, oatmeal) in a one to one ratio with wheat flour by all buyers at retail and the admixture by bakers of wheat flour substitutes at the ratio of one pound in four with wheat flour in making white bread. Only with the application of the "substitute" rules did the conservation program of the Food Administration become really effective. The total food

consumption of wheat flour in the United States during the eight months from July 1, 1917, to February 28, 1918, was considerably in excess of the corresponding figures for any year except 1915–16, and well over the average for the three "pre-war" years 1914–15 to 1916–17.[1] Net exports for the same eight months had fallen far behind the figures for any year since 1911–12.[2] In these conditions some decisive action to enforce conservation and stimulate exports had become imperative. This was supplied in part by the "substitute" requirements, which resulted in a great diminution of flour purchases, and in part by the requisition of a considerable part of the output of all the larger mills by the Food Administration. The proportion taken was at first (January to April) 30 per cent; later (May to June) it was increased to 45 per cent. This action, together with increased wheat imports, permitted a speeding up of exports of flour; until by the end of the crop year (June 30, 1918) 22,000,000 barrels of flour and 34,000,000 bushels of wheat had been shipped abroad. The net export movement for the twelve months was equivalent to a total of 132,000,000 bushels of wheat, from a crop which had promised to be scarcely adequate for domestic consumption.

A curious accompaniment of the intensified conservation movement of the spring months of 1918 was the voluntary relinquishment of stocks of hoarded flour by individual consumers, bakers, grocers, in response to appeals by the Food Administration. No estimate can be hazarded as to the amount of these holdings which were thus brought out; in the aggregate it appears to have been considerable. Their surrender was a testi-

[1] Estimates of U. S. Food Administration, Statistical Division, Information Service Bulletin No. 1045.

[2] Ibid. Net exports of wheat and flour from July, 1917, to February, 1918, were equivalent to 60,548,504 bushels; the average for the five years 1912–13 to 1916–17 (same months) was over 148,000,000 bushels.

monial both to the complexity of the task which the Food Administration had shouldered and to popular confidence in the degree of success with which it has been performed.

XXIV

3. The problem of equitable distribution of wheat to the flour mills by the Grain Corporation in 1917–18, was primarily a commercial problem and one of peculiar difficulty. Not only was there a short crop, but the existing supplies were so faultily located with respect to some of the large milling centers as to necessitate a considerable shifting of grain from one section to another as well as the importation of wheat from outside sources far in excess of anything known in previous years. The Grain Corporation, administered as a public agency by men who had been conspicuously successful in private life as practical grain men, established an enviable record for the uniform sagacity and fairness with which it handled the large problems of allocating the existing stocks of wheat in such a way as to fulfill our obligations to our allies and at the same time to prevent local flour famines in the United States. The achievement speaks for itself; no one went hungery in this country, and through the combined self-denial of millions of individuals here our engagements were made good to our allies in arms. This accomplishment was a splendid achievement of democracy at its best; the fact that many able men, inspired by Herbert Hoover's example, divorced themselves from their private interests and at great personal sacrifice devoted themselves to public work, rendered gratuitously, is indicative of a fine spirit which augurs well for American idealism.

WILFRED ELDRED.

WASHINGTON, D. C.

THE PRICE-FIXING OF COPPER

SUMMARY

Fixing price to consumer of a commodity necessary for war, 72. — Necessitates regulation of distribution, 73. — Copper industry unique, 76. — A unified industry, 77. — Demand for American copper decreased at beginning of the war, later expanded, 79. — Copper became practically a "cornered" metal, 87. — Coöperative Committee on Copper appointed, 89. — Necessity for price-fixing becomes apparent, 92. — Sources of supply, 99. — Risks encountered in expanding production, 100. — Increasing cost due to war conditions, 103.

GOVERNMENT price-fixing in this country has been a widely established practice in connection with our public service companies where the state grant of a franchise creates a legal or virtual monopoly, and also a duty to assure for its citizens uniformity of rates and protection against extortion. In recent years the exercise of these rights was taken over in part by the federal government, under its constitutional power to control commerce, and Congress gave to the Interstate Commerce Commission power to adjust and establish transportation rates. With the advent of war, however, the federal government was under the necessity of creating new machinery to marshall the nation's resources. The enormous powers given for this end have since the declaration of war become almost unlimited, and authority has been delegated to many persons in the name of the President. How far-reaching the industrial consequences of this control are, may be suggested by the fact that during the past eighteen months of war, prices as fixed cover the whole field of metals, chemicals, lumber, and other building materials, cotton and woolen textiles, wool, hides, and leather.

Price-fixing under present conditions signifies now a price determined to the consumer by a government at war, for a commodity deemed necessary for the winning of the war. In the case of copper, the United States, September 21, 1917, named a maximum price which was declared to be the one price f. o. b. New York, at which "supply" as produced, and subject to transportation adjustments, was to be available to all, including the government itself and the Allies, their civilians, and our own. It also provided against reduction of wages, which were then at their highest level. There was little copper for neutrals, and for them no price was fixed, tho such small sales as have been made were effected at the government price. Since August 30, 1918, the price fixed has not applied to civilians except in this country. There has been one advance from 23½ cents to 26 cents, and the price is now made f. o. b. cars or lighters at eastern refineries, f. o. b. cars or lighters at Pacific coast refineries for Pacific coast destinations, and f. o. b. cars or lighters New York, if shipped to eastern or interior destinations from Pacific coast refineries and from refineries in the interior of the United States. Present conditions including those in force as above, further provide that all shipments made after the period as fixed shall be subject to any change in price as determined by the Price-Fixing Committee, that all producers agree to take the necessary measures under the direction of the War Industries Board to prevent copper as distributed, from falling into the hands of speculators, who might increase the price to the public; and lastly that the producers pledge themselves to exert every effort necessary to keep up the output of copper so as to insure an adequate supply so long as the war lasts. Certain charges in excess of the maximum price, which however are here not important, were determined by the

Price-Fixing Committee on June 5, 1918, and concern copper shapes as delivered from the refineries.

Once a price is established, the same necessity that forces this step, also requires the government, sooner or later, to take responsibility for the regulation of distribution by a system, if need be, of priorities, rationing, and licensing. Price-fixing and priorities seek to prevent all private speculation and hoarding, and to control consumption by direction of both supply and demand. Further, the fixing of prices of any commodity makes necessary, gradually perhaps, but surely in the end, the determination of costs and profits, and so of prices for all stages of the production, from the raw material to the finished product, and from the producer to the consumer. There should be reasonable costs and profits for each stage. Up to the present time the practice of determination in our government price-fixing by the War Industries Board leaves to individual companies their extraordinary earnings which are due sometimes to the efficiency of their personal staffs, and again to the advantageous control of processes of production or of natural resources. Such extra earnings are then subject to an excess profits tax. With the copper industry, however, only two prices have yet been fixed for *refined copper*, first 23½ cents and then 26 cents. This government determination as to copper is an example of price-fixing in its simplest form.

Our government by its policy has successfully avoided legal complications. With fair adjustments and through the response of patriotism, yet also by the threat or act of commandeering, it has made workable its plan for *direction of industry* through *voluntary coöperative* price-fixing. There is no legal price-fixing authority except under the Lever Act for wheat and coal. These coöperative agreements with producers are made with duress

in the background; government duress being possible in the form of railway and fuel discrimination, priorities, licensing, or finally commandeering. Government direction of industry by these means is justified only as it stabilizes the industrial structure, eliminates profiteering, secures adequate production and the absolute control that the necessities of war require. Such enormous powers, increased as they are now by the Overman Act, and incapable of attaining more than approximate justice, require for their administration not men who will use so-called "political" methods, but men of high moral vision and recognized business experience.

Copper has been proved a metal of primary necessity to nations at war. Governments for their war needs create a new demand backed by unlimited and unquestioned buying power, which makes price-fixing inevitable. The enormous needs of the Allies were only to be met by concentrated buying from all selling agencies, and this buying was so urgent that any withholding against these large orders would have led to trade chaos with wide upward fluctuations. Even before our entry into the great conflict on April 6, 1917, the large producers and selling agencies had themselves found it impossible to meet trade conditions without at first from month to month, and finally in 1916 during most of the year, establishing for export sales an almost uniform price. During 1915 the rapid spending of money for copper raised, by monthly stages, the export price from 13 to 22 cents, while after February, 1916, this export price held between 26½ and 28 cents. From our entry into the war copper was one of the commodities first to have its price fixed for the government.

Copper as a metal combines easily with thirty-six other elements, is used as a component in hundreds of alloys, many having established trade names, and is thus

in very many ways industrially essential. It is in truth our best metal commercially, and in war times is without an effective substitute. Military demands that force high prices for copper are coincident with other war demands for essential materials, and with increasing prices for all possible substitutes. Aluminum, for example, was from the very first, almost entirely requisitioned for use, directly or indirectly, in manufactured products necessary for government purposes. In uses where copper is indestructible, as in telegraphy, telephoning, ship, engine and other motor building, locomotives and railroad work, the war requirements are at first very heavy. War business and our own installations for defense at home, call for very large supplies at once, and this great increase in demand must continue for some time to come. Lord Northcliffe's prediction, made over a year ago, is already far along in its process of fulfillment. His prophecy was that before the war's end, we should build several cities in France to care for repairs, for the assembling and reconstruction of equipment, and for the manufacturing of munitions. In munitions copper is destructible and there is a large annual and absolute loss. One-third of the copper used goes into fixed and semi-fixed artillery ammunition, where foreign experience has shown savings of about 80 per cent. Were a minimum of 5 per cent assured on all other artillery ammunition, including also small arms, there would be a total salvage of at least 30 per cent. As organization is bettered this percentage can be increased. United States government specifications, for example, require cartridges to stand twenty reloadings. Moreover, invention is bringing into use new, effectual, and lasting economies. Once these detailed readjustments are made, new construction completed and the necessary surpluses accumulated, renewal demands will follow in a much lesser

degree. If England's present experience may be our criterion as to stocks needed on hand for the prosecution of the war, there will remain, upon the cessation of the fighting, for all these uses, from motor vehicle parts to sixteen-inch shells, large accumulations of supplies — reserves for from ten to eighteen months, which at all times it has been deemed necessary to carry. But during the war the net result must be a very slow but nevertheless continuous accumulation of copper tending toward market saturation, when once the large program of construction is approximately completed and the manpower of the nations at the front has reached its maximum. Until the end, therefore, war demands must be urgent and not only discount present needs but also a long future.

As an industry copper production is in many ways unique, and its price-fixing problems essentially different from those of most other industries. In the agencies of production and distribution there has been far-reaching concentration. Much time and considerable sums of money are necessary to create a copper mine with a large output. After copper ore is once located, the equipment of the mine, the establishing of necessary railroad connections and the building of reduction works require not only millions of dollars of capital but also, under normal conditions as experience records, a probable minimum of five years for development. The Kennecott Copper Company, a most extreme instance, spent more than $20,000,000 before railroad transportation along the banks of the Copper River was even begun; and it is such development expenditures as this that must be risked, and within the life of the mine liquidated with interest. For the sake of suggesting proportion, and as roughly establishing Nature's part, it may be said that the purchase price of the located ore body is

to the cost of this necessary development construction, as one to one hundred, before a really large producing mine with profits available for dividends is secured. Increases come mainly from the large mines. This is further shown by the fact that, with 79.6 per cent more mines in the United States in 1916 than in 1913, more than 70 per cent of the increased production of the latter year came from mines of more than 10,000,000 pounds annual production, while the percentage from mines of less than 1,000,000 pounds production was but 3.55 per cent. As a mineral, copper is found in all our states except Florida. A list, however, of four hundred copper mines will include every mine throughout the entire world which produces in a year more than 200,000 pounds, or an annual gross value now for its product f. o. b. New York of approximately $50,000. After three-quarters of a century of development in this important industry, there are within the United States eighteen hundred and forty-eight mines producing copper. Of this number in 1916, the year of largest efficiency, thirty-one mines produced more than 85 per cent of the output, or 1,711,395,262 pounds, while less than 295,000,000 pounds were obtained from the remainder, or an average of 160,000 pounds to a mine.

Smelting and refining show within the industry still further concentration. In 1916, twenty-seven companies controlling thirty-six smelters in the United States produced more than 2,000,000,000 pounds of electrolytic copper. Refining capacity cares for imported as well as domestic ores, and in the United States exceeds smelting capacity. The refineries in 1916 treated more than 450,000,000 pounds additional from foreign sources. Six companies controlling ten refineries in the United States had a developed capacity in 1917 of 2,780,000,000 pounds; while two of the re-

fining groups handling their own and custom ore, had respectively an output of more than 750,000,000 and of 1,000,000,000 pounds a year. In smelting and refining, new processes, some of which are patented, are bringing great changes which tend to strengthen the few large companies. Flotation and treatment by leaching are the recent material advances in saving metal heretofore usually lost, and the increasing use of these discoveries may soon lead to the superseding of our great copper smelters. By the flotation process about 27,000,000 tons of copper are annually treated. A single company, the Minerals Separation North American Corporation controls patents which have been for a long time in litigation, at a cost to date of probably more than two million dollars. The rights under these patents ought soon, for the sake of the industry, to be determined finally by adjudication in the United States Supreme Court. The process is of enormous value in the treatment of base metal ores like zinc and copper, and is as great an advance for this industry as the cyanide process has been for gold.

Four selling agencies in 1916 handled almost 80 per cent of all the refined copper sold in this country for domestic and foreign consumption, and more than 66 per cent of the world production. The increase of 62.3 per cent in the United States output of copper from 1914 to 1916, coming so largely from mines with an annual production of more than 10,000,000 pounds has steadily made for concentration which has been secured with only small additions to capital obligations. Today the entire industry represents an American investment of approximately one and a half billion dollars. Its product for example is in wide contrast with coal, in that refined copper is practically the same in quality the country over; is sold in the trade f. o. b. as of New

York with freight adjustments; and in this price are included all the transportation costs from the mine to the refinery. While copper can be entirely withdrawn from all but war uses, coal is essential to every one and its conservation must everywhere be enforced upon consumers through nation-wide control of output and distribution. Because copper is so far a primary necessity of war, and because the American copper industry is so unified, and withal represents so large a proportion of the world production, copper, its output and its market, must be studied from the beginning of the great war, if the necessity for our own government action and its effectiveness is to be understood and justified.

The copper market problem of 1914 and 1915 was the familiar one of adjustment of supply and demand, but during the last six months of 1914, because of the world-wide industrial paralysis due to the war, it was one of adjustment of supply to a *minimum* demand. Domestic deliveries in normal times exceed exports, but for three years, 1911–13, the domestic deliveries failed to equal the foreign, and the average excess of exports was at the rate of 1 per cent a year. The exports for eighteen months, to June 30, 1914, however, were almost 25 per cent in excess of domestic deliveries; and of the total of 1,358,000,000 pounds exported from the United States, 827,000,000 pounds, almost wholly for German consumption, were shipped to Holland and to Germany. The increasing momentum of this export movement, and the contrasted domestic minimum of demand, are shown by the fact that foreign deliveries in the first six months of 1914 were 489,000,000 pounds, an excess of 48 per cent over domestic deliveries, which were 330,000,000 pounds. Electrolytic copper, the standard grade of copper in the United States, sold in New York in June and July before war was declared, at the lowest price

since December, 1911. While general business in the United States at this time was at a low ebb, German prosperity, if copper imports were its true measure, was at its height. But now it can be recognized that German manipulation for the purposes of accumulation was the large factor which depressed prices. Until this time and for a generation German interests had dominated the metal output of the world.

The beginning of the present war suddenly cut down demand still further. Copper circles had to repeat the trade experience of 1908–10 when demand had fallen sharply. Copper for three years had remained at the low average of 13¼ cents a pound. By this experience the trade finally and fully learned that widely fluctuating and abnormally high prices are a real damage, and that to keep on producing when consumption is below normal means demoralization of the market through huge surpluses which depress values until low prices enable the floating supply to be absorbed. An increase in smelter production in 1912 of 13.3 per cent was followed in 1913 by a decrease of 1.5 per cent, but the output of the refineries continued to increase and 1913 exceeded 1912 by more than 25 per cent. In 1914 through June, refinery production again increased at the rate of 3 per cent, or to a total of almost 140,000,000 pounds a month. However, the smelter production of 1914 had shown a loss of more than half of the 1912 increase of 13.3 per cent. Large foreign consumption and some pre-war absorption for later war needs, had nevertheless carried the world's visible supply in October, 1913, down to 90,000,000 pounds, the lowest since the figures of the Copper Producers Association were first issued in 1909. These trade factors were in the main without effect in changing the downward trend of prices. New low levels of proven cost for pro-

duction by the porphyries, and the increasing output of these so-called low grade mines, were further depressing to the market and unsettling to confidence. The Copper Producers Association's figures, and their authoratative publicity had been without any significant effect in adjusting supply to demand. As a consequence of the general industrial paralysis following upon the declaration of war, publicity of figures was discontinued, and the trade accepted the absolute dependence of the United States as a producing country, on protective and positive measures for adjusting supply to demand.

Decisive steps for curtailment were taken, and some mines improved the opportunity to make large alterations and new installations. Opinion was almost unanimous that it was better to assure *fair* prices on *moderate* output — an output which is not excessive in proportion to demand — than *low* prices on *excessive* production; that it was better to store copper in the ground until future industries required resumption of mining, than to sell at a small margin of profit or even no profit. A large producer used to say, " the difference between a good and a bad copper market is a difference of 5 per cent in supply." In truth, experience has taught that copper is a product involving too large quantities to be stored anywhere else than in the ground. The " vein mine group," as contrasted with the porphyries, acted promptly. Curtailment was radically forced. Even refinery production, which is not at once affected by the action of the mines, and which had been steadily increasing, except for 1.5 per cent shrinkage in 1911, averaged in the last six months of 1914, 30,000,000 pounds a month less than the monthly production of the first half of the year, or a decrease of more than 22 per cent. Shrinkage in imports was a factor. This curtailment, however, was offset by demoralization

at home and abroad. War demands were slow in absorbing supplies on hand, increased as they were by large existing stocks of old copper and scrap. Prices generally tended downward, and electrolytic reached its lowest monthly average, 11.40 cents, in October of 1914.

Market conditions recovered from their demoralization slowly. It was January, 1915, before prices were above 13.49 cents and so above the pre-war level, and June before imports had recovered. The foreign visible supply, having from the beginning of the war increased 25 per cent, began in July to decline, and in December exports exceeded those of July, 1914. Domestic deliveries, after the first six months of the war, began rapidly to increase, and were estimated for 1915, at 1,043,000,000 pounds, a gain of 425,000,000 pounds over 1914, or a 68 per cent increase, after the drop in 1914 of 23 per cent from the 1913 figures. There must be added to this large gain in consumption the increase in the refined product from "secondary copper," which amounted in 1915 to 140,000,000 pounds. The major trade factors in 1915 were the increased domestic deliveries of more than 565,000,000 pounds of copper; the loss, to a market long supported by foreign buying, of the export trade with the Central Powers, or approximately 450,000,000 pounds; and the evident manipulation of the London market, for "standard." If the purpose of the manipulation during this period could be fully shown, it would appear that intelligent effort was steadily made to regulate the prices of copper as well as of other materials before placing large orders in this country, for *prices* were fundamentally related to war contracts. The handling of the market also proved conclusively that export values were as long as possible kept stable, while the domestic market was intentionally left to take the shocks and slams of fluctuating demand

and its exaggerating accompaniment, speculation. Exports from the United States fell off 25 per cent, and England imported almost 10 per cent less than in the previous year, yet imports to France, Italy, and Russia from the United States increased more than 75 per cent, and of our total exports these countries took more than 60 per cent. The price variation on exports was from 13 to 22 cents. For these reasons, with the needs of so many warring nations to be measured, copper statistics were confusing, and unintelligible except to the large American agencies which were acting for the Allies in the placing of war orders.

The advance in prices that began in October of 1914 continued throughout 1915. Into our market, at the very beginning of the war, came an enormous buying power to be used for the purchase of supplies. England had wide general credit in this country, and the French government, through borrowings and by actual deposits of gold increased very largely its banking credit. The extensive purchases of copper were handled in such a manner as not to force a rapid market rise of price, but so as to restrain buying, and with very remarkable success kept the market from becoming erratic or excited. On the 15th of January, 1915, Morgan & Company made public announcement of the fact that they had become the commercial agents of the British government in directing the purchase of supplies in the United States. At a later date they accepted similar responsibilities for France, and their purchases early in 1915 were reported as averaging $10,000,000 a day. With this buying power concentrated in American agencies, it is significant that there followed in March of 1915 President Wilson's announcement, in connection with the Webb Bill, in which steel and copper producers were vitally concerned, that the administra-

tion was not averse to the combination of American interests to further foreign trade. Shortly after, in May, a trade paper stated that "Great Britain was in control of the world's copper supply outside of Germany," negotiations having been for some time in progress, with the expectation of controlling the output of the large American producers. The fact is that the monthly average prices of copper advanced without reaction, and on good news as well as on bad, until July, 1915, when after a slight recession from 19.71 cents to 17.22 cents, they rose in December, 1915, to more than 20 cents. Speculatively, copper in June sold up almost to 20 cents, discounting after almost a year of war, the probability that in spite of many factors of uncertainty, consumption would overtake available supply. The speculative forecast became a reality in December. For the first time in history American producers had enjoyed an advance in prices starting with a production many millions of pounds below normal. The demand for copper was enormous, and constantly increasing not only in the usual industries — electric transmissions, brass manufacture, castings — but for motor vehicles, munitions of war, and for the various needs in connection with the operations of the steel mills. There was no domestic business of consequence requiring the use of additional copper in hardware, building supplies, and furniture. Government orders and war needs had, by the end of 1915, very largely reconstituted the "demand," and the "supply" was thereafter to be the utmost that American resources could produce. The mistake in this period for the foreign buyer was his failure to contract for supplies well into the future. By the end of 1915 the market had passed from the control of the buyer and was dominated by the large selling agencies which, in their turn to prevent a runaway mar-

ket, sought to dictate the distribution of copper and a steady price.

From December, 1915, to February, 1916, there was from the December average of 20.35 cents a rise of more than 7 cents, and except for one month, prices did not react below 27.35 cents until July, 1917, a period of eighteen months. Copper companies had so far sold their 1915 production that there were practically no spot copper and almost no futures available for the first quarter of 1916. The large purchases of manufactured copper in the United States were being financed by foreign governments especially to guarantee deliveries. Just at the close of 1915, December 22, the Anaconda Copper Company sold 120,000,000 pounds of copper at 22 cents, and thereupon apportioned the amount among the largest selling agencies in New York. This was the first announced sale in which American interests publicly acted together and divided an order. To allay trade fears it was at once stated that the large producers were determined to keep metal prices at a reasonable figure, and that attempts to sell copper at a price which was regarded by them as exorbitant, would be discouraged. The producers' helplessness, notwithstanding this expression of trade determination, is shown by the fact that in 1916 the average monthly prices per pound for copper were more than ten cents above the average for 1915, and within forty-five days after the Anaconda sale, copper sold above 27 cents. Had the market been left to itself and freely subject to supply and demand, intensified by the speculation usually incident to a rise, copper would have commanded famine prices with violent fluctuations. Voluntary self-determination of the trade as to price and distribution — distribution being as far as possible based on actual consumption — for a time ac-

complished much toward establishing stability but could not itself control the working of economic forces.

The year 1916 was in many ways a maximum year to date. Production of refined copper in the United States was 1,927,000,000 pounds, an increase over 1915 of 38.9 per cent, while the gain in 1915 over 1914 had already been 20.7 per cent. The monthly and yearly average of prices was the highest since 1873. But the most striking feature of the year was the phenomenal increase of consumption in the United States because of foreign business placed here in manufactures. Twenty-one domestic concerns, according to a trade paper, used in 1916 more than one and one-half billion pounds of copper. The foreign orders were the largest ever known, and sales, with approximate prices, including the one by the Anaconda Copper Company in December, 1915, were as follows: to Great Britain, December, 1915, 120,000,000 pounds, at 22 cents; to France, March, 1916, 100,000,000 pounds at 27 cents; to Great Britain, April, 300,000,000 pounds at 27½ cents; and to England and France, September, 1916, 448,000,000 pounds at 27 cents. This total of more than 950,000,000 pounds that Great Britain and her allies took from the market, together with what was contracted for by American consumers, left the refineries bare of supplies. For the last three months after the large September sale, copper averaged 31½ cents. Domestic buyers, because of high prices, had allowed stocks on hand to run low, and then with the continuing advance, hesitated to accumulate supplies. During 1916 the market was thus in a feverish speculative condition. In spite of the increase in the output of copper through 1916, the average price of 33.84 cents for the last month of that year proved to be the year's highest monthly average. The discontinuance, in December, by England and France of the

publication of statistics of foreign visible supply, and on January 1, 1917, the formal taking over, by their respective governments, of all the English and the French copper stocks, were public acknowledgments of an undeniable world scarcity of copper.

Copper was indeed practically a " cornered " metal. Heavy government buying had to continue, and a change of policy was necessary. The last Anglo-French purchase had been sensational both in its size, and because of its admission that it should be deemed expedient to provide in September so largely for deliveries throughout the following year. While manufactured products, wholly or partly finished, continued to be purchased in record-breaking quantities and at the highest prices, foreign governments thereafter, instead of taking specified amounts of refined copper, bought only from time to time, and at the best possible price, such copper as could be secured from the large producers. It was believed that by the establishment of this new policy the market in the future would not be stimulated by figures of exaggerated totals such as were rumored during the last weeks of 1916. Except on two occasions in 1917, no large sales have since been featured in the trade news.

Tho in the minds of some people the country was tardy in declaring war, it is to the credit of the Administration that the machinery for government direction in marshalling the nation's supplies and in controlling the productive forces was early provided. The United States Council of National Defense, composed of six members of the cabinet, was created by an act of Congress, approved by the President, August 29, 1916. In March, 1917, the council was fully organized and the President appointed an Advisory Commission of seven men expert in various lines. Bernard M. Baruch having

special knowledge of minerals and metals, was made chairman of the Committee on Raw Materials, Minerals, and Metals which was created to study and report on all sources and possibilities for securing such materials as were needed by the government. This was not a purchasing committee, but on the 23rd of March, Mr. Baruch announced that a sale had been made to the government of 45,000,000 pounds of copper at 16¾ cents a pound, for delivery extending over the twelve months from April first. This figure was based on the actual ten-year average of sales made by the United Metals Sellings Company from 1906 to 1916. Since the average price per pound during the first three months of 1917 had been 30.634 cents, there was to the companies accepting this figure an estimated loss of almost $14,000,000. The first annual report of the Council of National Defense, 1917, states that at this period "the market price was about 35 cents." To explain this transaction it should be remembered that a division of opinion as to our nation's attitude toward the war existed throughout the country and was especially marked between the different sections. In the financial circles of the East, there was more nearly an unanimity of opinion as to the necessity for the country's entrance into the great conflict, and this united action of the copper producers was intended as a patriotic demonstration that here was a powerful industry not seeking opportunities for profiteering. Only one of the large companies refused to accept a share in this sale. The price, however, was not justified on any economic principle, since too large a proportion of the nation's output could not be produced for this sum. It is a grave question whether the transaction accomplished what its sponsors desired, and what the companies certainly deserved to achieve by so large a sacrifice.

On the 18th of May, 1917, the Coöperative Committee on Copper was appointed by the Committee on Raw Materials, the members being representative producers of copper, with John D. Ryan as chairman. The purpose of the Coöperative Committee on Copper, which immediately began work, was to supervise the production and the distribution of copper by the private companies for the period of the war, and it was announced that if the committee were successful in its endeavors, the necessity for commandeering the mines for the sake of securing copper to make munitions would be removed. The burden of these tasks, however, was some four months later absorbed by the Copper Producers Committee, and the Non-Ferrous Metals Section of the War Industries Board, and the Coöperative Committee on Copper ceased to be an active agency.

The General Munitions Board of the Council of National Defense was appointed in April, 1917, with a membership of twenty-four, seventeen from the Army and Navy, and seven civilians. In June, it arranged with the approval of the Chief of Ordnance, for the purchase of 60,000,000 pounds of copper at 25 cents, but the transaction was not approved by the War Department. It was clear that the Secretary of War did not wish to assume responsibility for a price of 25 cents, and therefore requested that the issues of profits and costs be determined by the Federal Trade Commission. On July 30, 1917, the General Munitions Board was succeeded by the War Industries Board, composed of eleven members. Its function was to control the production and distribution of all commodities essential to the conduct of the war, giving special attention to the vital war problems relating to raw material, finished products, and priority. Authority was thus given to determine ways and means of creating, as well as of

using the industrial agencies of the country, and also power to measure the relative urgency of the different government services. Three of its members were constituted a commission to arrange purchases, except where foodstuffs were involved. One of the duties of the War Industries Board was to fix prices, but later, on March 4, 1918, this power was delegated to a Price-Fixing Committee with Robert S. Brookings of St. Louis as its chairman. This committee was appointed by and reports direct to the President. The membership was limited to nine including the Chairman of the War Industries Board ex officio. Four are civilians, of whom three are members of the War Industries Board and one is the labor representative, while the Army, Navy, Fuel Administration, United States Tariff Commission and the Federal Trade Commission, are each represented by one member. Its duties include not only the passing on prices but the establishing of a price-fixing policy, and the assisting, if desired, of the executive departments in the adjustments of difficulties growing out of price-fixing matters. Prices are determined by the committee after costs as a basis have been reported on by the Federal Trade Commission. But the committee's determination which is final, must have measured not only costs, but also have considered problems of production and distribution as well as profits as they are related to prices.

In the fall of 1917, the I. W. W. strikes in Arizona and Montana seriously crippled these sources of production and accentuated because of shrinking supplies the need of further coöperation in allotting copper. But the immediate cause of the next step in the organization of control was the fixing of the price of copper on September 21, 1917, at 23½ cents. By this act demand and supply as factors were gone, and additional new ma-

chinery was needed to control distribution. Seven days later, September 28, 1917, a Copper Producers Committee was organized, and became the controlling and distributing body for the producers. Strikes and operating problems have not been their concern, and no step has been taken by them to increase production. On October 22, the Section on Non-Ferrous Metals — antimony, aluminum, copper, lead, mercury, nickel, and zinc — was appointed with Eugene Meyer, Jr., as chief. In February, 1918, Pope Yeatman succeeded to that title. The Copper Producers Committee became a close interlocking agency with the Priorities Committee and with this section of the War Industries Board to help the government in securing its necessary requirements under the new conditions.

The Copper Producers Committee was named at a meeting where practically all the producers were represented directly or by their selling agents, and thereafter it acted for the industry in dealings with the government. The committee was clearly understood not to be in an advisory relationship to the government, nor was it a legally authorized agent to act for the producers. Two companies, however, became the virtual business and selling agents. The United Metals Selling Company, in connection with the sale to the government in March, of 45,000,000 pounds at 16¾ cents, had volunteered its assistance to the Coöperative Committee on Copper and accepted the responsibility for allotting to the producers the several amounts, and for distributing the same as received from those who shared in this transaction. It was natural, therefore, that they should volunteer to continue as agents in making the necessary business adjustments between the producing companies and the government in the distribution of supplies in this country. On the other hand, the American Smelt-

ing and Refining Company, because of its long experience and its very large export business, voluntarily assumed a similar responsibility between the producers and foreign governments. This service, involving for the companies a considerable increase in their staffs, has continued to be maintained without expense to the government. Because there was not enough copper to meet the demands, all companies were assured orders in their proper proportion, and the right of the committee to act in this capacity for all met with no organized opposition. In case of need, this committee could rely on government duress, so they with confidence pledged the government that they would answer for all producers accepting for their output the government price, when and as fixed. Since their organization, they have successfully carried out the terms of that agreement.

With our entry into the war, the situation had become absolutely taut as regards supply. There was hardly enough copper to meet contract needs, and then only enough through careful coöperation, through the inventorying and watching of supplies, and the gradual calling into use of existing stocks wherever found. Every pound of copper had to be allotted by the careful matching of output with the consumers' needs, and where some particular brand of copper was required by the government, existing contracts were released. The general program for the Army and Navy was growing enormously. The Secretary of War's estimates began at $2,800,000,000, and $3,000,000,000 was provided. But in December $6,000,000,000 more was asked for, and five months later when the bill was passed, the amount was $12,000,000,000. It was natural that government agencies should each for themselves seek to get supplies for their own needs or for the private contracts which each had placed. War uses controlled, and individual ambi-

tion for immediate results was allied to patriotism. The inexperience of all concerned in war business, fear of profiteering, and mistrust of business leaders, were further factors that lead inevitably to competitive rivalries and congestion. This brought about marked contrasts — accumulated stocks in one quarter, and starving in extreme want in another. Such were the abnormal and almost panicky conditions in the fall of 1917, requiring supervision and ordered control by the government agencies in coöperation with the Copper Producers Committee.

The agreement between the government and the producers was reached September 21, 1917, when with the approval of the President a price of 23½ cents f.o.b. New York was announced to continue for four months. The advances to the government at this figure during the six months and more from April 7 to September 21 amounted to between ten and fifteen million dollars. For our own government this was the price of its copper from the beginning of the war, while for the Allies and their civilians as well as our own, this price became operative on and after September 21. The Allied Purchasing Commission which was appointed to prevent conflict between foreign government purchases and our own, had on September 6 arranged a sale of 77,000,000 pounds at 25 cents in behalf of England, France, and Italy, and the terms of this sale were not changed. Twenty-five cents had been the lowest price at which the producers had been willing to sell, so 23½ cents was a compromise, since the government's first and lowest counter offer had been 18 cents. With the costs of production as established at the beginning in 1917, this price, unless averaged down by the sale at 16¾ cents in March, 1917, was too generous to the companies for a similar proportion between costs and profits to be long

hoped for or continued. Increased costs, however, soon changed this proportion until now it can be safely contended that for most producers, the profits after taxes are computed, are below the normal for the pre-war period before 1914.

The interval of uncertainty between March 23 and September 21, 1917, as to what would be the final agreement between the government and the private companies as to price and as to the methods of handling future business, largely curtailed new buying except for immediate needs. Deliveries, however, were speeded up so that the large Anglo-French order of September, 1916, the whole planned to provide for the year 1917, was filled by July, and old contracts continued to absorb all available output. Prices dropped to their lowest level, 24½ cents, in July and in August of 1917, with but very little copper changing hands. Nevertheless, the average during the entire interval of delay from April through September was as high as 27.29 cents. The course followed by prices during this period proved conclusively that consumption for a long time had been running at a rate which had exhausted surplus stocks. The 1917 average for nine months through September was 28.4 cents, and this even tho it was well understood that government price-fixing meant lower prices for the metal. The remarkable fact is that the market had been thus stabilized and speculation so largely controlled during a period when producers might have commanded 15, 20 or even 25 per cent more for their copper, if scarcity value had been placed on their output.

In January of 1918, conferences with producers in Washington resulted in the continuance of the existing price until June 1, 1918. The last of May there was a further extension to August 15, to which the producers did not agree. This action of the Price-Fixing Com-

mittee was the source of much misunderstanding, as many felt that with the facts in hand as to added costs, the old price should not have been continued for seventy-five days. On the producers' side, some sold their copper under protest, assuming the price was soon to be advanced, and others acted on the belief that the price had been fixed to August 15. The consumers, however, were almost unanimous in their assumption that the price was fixed, and made their contracts accordingly on that basis with the government and with private contractors. On the 2d of July the War Industries Board announced an interim advance to 26 cents for the period from July 2 to August 15, pending the decision for a longer time on or about August 7. Increased costs had definitely accrued through advances in freight rates effective June 25; immediate increases in wages were pending, and necessary adjustments required added money allowances to the refineries. On these facts as presented by the producers and in so far as they could be actually measured, the committee acted, granting a portion of the advance desired, but not the full amount of the added costs. No distinction in price was granted to the so-called high cost producers. Because of the suddeness with which this interim advance was made, there was considerable further confusion within the trade and consequent losses, so that similar action is not likely to be repeated. The analysis of the copper companies and their costs which was made by the Federal Trade Commission and reported to the War Industries Board in July, 1918, has not been given to the public. At the hearing in August, the price fixed was continued at 26 cents to November first. On August 30, the Board ruled that no price was fixed for civilians of Allied countries. As in the case of neutrals however, for them very little copper is available, and indeed no copper can

be exported without a government license from the War Trade Board. On October 26, 1918, a virtual agreement announced by the War Industries Board was made effective by the President's approval, continuing the price of 26 cents to January 1, 1918. The *Wall Street Journal* estimated, in September, that with a monthly production of almost 200,000,000 pounds of refined copper, only 5,000,000 pounds or 2½ per cent was then available for uses not directly or indirectly connected with the war, and of this small amount the large proportion was exported. By October, as a result of the plans for the great Spring drive in 1919, and for the equipment of an army of four million and more men for overseas service government demands exceeded all possible production. Price-fixing of copper has thus come to mean for this country practically a price determined by the government to *itself* as the consumer of a commodity, every pound of which is deemed urgently needed for the winning of the war. Priority orders, not advancing prices, are therefore now the effective agencies for securing to the government the necessary product and distributing it so as to meet the nation's needs.

The sequence here developed as to the general principles of price-fixing in the United States, the nature of the particular industry, the uses of its product, and the history of market conditions before and under government control, makes clear the necessity of a price being fixed for copper. A price fixed for any commodity must first be justified as necessary. Then this action must be related to other agencies of government war control so that altogether they may prove wisely cooperative and constructive, if the government is to secure adequate production for the winning of the war. Not necessity alone, but, to use the suggestion in the phrase " quality of mercy," it is the " quality of wis-

dom" in the exercise of these great powers that is the final test.

As incident, therefore, to the further fixing of a government determined price, war control agencies must continue and do much more work than they have yet done, to secure needed supplies, or even to restore the maximum production of 1916. Besides they must obtain added supplies through the better organization, as well as the increase, of all the factors of production and distribution. Already prices largely affecting copper costs have been determined for coal, coke, steel, and lumber. Still further to control costs, prices may be fixed for other materials as well as for the by-products. The Railroad Administration and the Priority Board by their orders can secure greater swiftness and promptness in deliveries, and this is especially essential as this industry is peculiarly dependent on transportation facilities. For instance, most of the blister copper must be brought from smelters in the West to refineries on the Atlantic seaboard. One large producer estimated that the loss in production for the year 1917 amounted to over 200,000,000 pounds, through coal shortage, railroad congestion, and the I. W. W. strikes. And this includes no measure of loss from temporary shut-downs, intermittency, and inefficiency of labor and its enormous turnover, due both to the competitive bidding in industry and to the high wage scale paid on direct government work.

The registration on September 12th of men between eighteen and forty-five demands new intimacies of coöperation between the government agencies and industry. This last draft inevitably means serious impairment of the nation's output. It will affect copper together with other war necessities, through the withdrawal of workers from essential industries, and through

mistakes growing out of the difficulties in assessing the value of individual men to their respective organizations. Men in the draft, if our experience proves similar to England's, may, therefore, actually be sent into military service abroad, only to be called back because found to be more needed in industry than in the trenches. And yet, " to be called back " will for our soldiers mean to be withdrawn from the military into the industrial service in Europe, in order to meet there our own increasing needs, not only to repair equipment, but also to supplement and complete that which we have failed to perfect here.

Labor adjustments under the control of the National Labor Board, and enforced by the President, promise regulations which will minimize the loss of time from labor disputes. Under the United States Employment Service, organized and effective August 1, 1918, there is established a monopoly in the distribution of so-called unskilled workers, which is intended to reduce the waste due to our unprecedented labor turnover. This form of government aid will prove helpful, but a mining industry is not easily recruited from unskilled labor. If copper production is to increase, trained miners must be taken from the poorer and smaller metal mines and allotted to those copper producers who have the greatest capacity per unit of man-power, for the greater proportion of our production comes from a few large mines. One-half of the entire output of copper in this country comes from mines whose production in terms of pounds per man varies from two to six times the average of all the less advantageously worked ore bodies. In 1916, 85.22 per cent was produced by thirty-one mines, and their percentage of the total gain was 90.74 per cent. But under the constitution of our democracy no man can be forced against his will to work, except after being

drafted into military service or under threat of losing his rights to exemption. Such constraint will be used to increase efficiency and reduce labor turnovers, and to this end standardization of wages may yet be effected. As these government agencies of control are successful in setting in order the organization and the processes of industry, it is the function of the Price-Fixing Committee to measure the costs, and assure reasonable profits to private interests only so long as their facilities of production are essential, adequate, and efficient, and not wasteful of man-power.

Granted that these government agencies give adequate coöperation in meeting the needs of the industry, there remain three sources of supply which require particular consideration and perhaps special prices for their copper in order to secure adequate production. These are, first, the mines in foreign countries; second, the so-called high cost producers; and, third, ore bodies in this country fully explored but not now being developed. Increases could be secured from foreign sources, if shipping were assured. Chile might continue her annual increases in production — 39,000,000 pounds in 1916 over 1915 — but tonnage is lacking, and for this reason, it was announced in July, 1918, that the plans for doubling the capacity of the Chile Exploration Copper Company were abandoned. Peru's 1916 increase over 1915 was nearly 21,000,000 pounds, but the Cerro-de-Pasco Copper Corporation, the largest mining company in Peru, is at present hampered by lack of ships and its production is decreasing. From Mexico, were conditions normal and a return possible to the same production as in 1912, more than 40,000,000 pounds increase could come, and this in spite of the fact that the 1916 production over 1915 was nearly 54,000,000 pounds. On the other hand, as Japan has been supple-

menting her own output since 1916 by refining brass coins imported from China, one firm having had a contract for two hundred thousand tons, it is doubtful if Japan can be counted on for much added production. Her increased yield from domestic ores in 1916 over 1915 was 13,000,000 pounds. Countries at a greater distance will hardly prove available for additional supplies in this crisis. But there is a price in excess of the price fixed in this country which it would pay us to offer for copper imported from neutral countries, and so procure the contribution of their labor and capital to satisfy our war needs. This result would justify a bounty for imports or even a charter bonus being given to neutral ships for this trade; or, best of all, our own Shipping Board might provide tonnage.

Increases of importance for our war needs are not now possible from discoveries, nor from recently developed mines. Even from many of the high cost producers the maximum production of 1916 cannot now be recovered unless a special price is made for their product. The normal process of copper mine development in the United States may be briefly summarized as follows: first, discovery and exploration by prospectors; second, development by an enlarged ownership — one of the smelting companies, or some group of men of wealth, taking a large portion, or even acquiring, not a part, but the whole, by purchase; and third, the offer of shares to the public on a speculative basis. In recent years, the successful mining companies, through exploration departments, or by actually creating exploration companies, have used their expert geological engineering staffs, and have examined hundreds of claims brought by the prospector who was welcome if his "specimens" and "showings" were interesting. In the prosperous years 1913 to 1916, the number of copper mines in the

United States increased from five hundred and sixty-three to ten hundred and eleven, or 79.6 per cent. The gain in this period, in the number of mines producing more than 1,000,000 pounds per annum was twenty-six, or 25 per cent. The risks attendant upon these developments are great, and the losses are so numerous that more and more such undertakings have gone forward only with the active aid and the financial help of the large companies. Not one of these, however, would now contract for such a development, and none would at any time accept for consideration an engineer's report that did not promise at least a 20 per cent profit. The Kennecott Copper Company in Alaska absorbed the Braden Copper Company in Chile, and made permanent its interest in copper production by large stock ownership in the Utah Copper Company. Anaconda Copper Company in Montana and its officers own very large interests in the Inspiration Copper Company of Arizona, the Green Cananea Copper Company of Mexico, and the Andes Copper Mining Company in South America. The Chile Exploration Company is controlled by the American Smelting and Refining Company group, while the large owners of Utah Copper have created "Ray" in Arizona and "Chino" in New Mexico.

With such risks to be ventured in the production of copper, and often only under these conditions of co-operation, the general assumption is credible that no price can be fixed at this time which will assure the necessary speculative rewards, subject to taxes, for the development of any considerable output from prospects and small mines. There should be as long as possible some margin of profit for the "going mines" in this classification, because the government in fixing a price to secure production in an essential industry assumes toward such properties a responsibility for at least pro-

viding the necessary price level to permit the continuance of the operations of these mines at a minimum cost essential to maintain their existence. Otherwise government action penalizes such companies by compelling them to run at a loss in order to save the capital invested together with some remnant of their organization. Special prices might well insure some continued output, and small supplies, therefore, may be expected from the nine hundred and fourteen mines which in 1916 produced about 50,000,000 pounds, or an average from each mine of approximately 50,000 pounds.

There were in 1916, ninety-seven copper mines producing more than 1,000,000 pounds a year; and of these the output of fifty-five was, for each, less than 5,000,000 pounds. As a unit of measure, each million pounds at a profit of ten cents a pound, without deduction for taxes, nets for a company $100,000. The output of the fifty-five mines probably averaged 2,000,000 pounds, so that this production, if ore in sight continued equal, and an amount for amortization charges were included in the costs, would allow for each mine $200,000 net income, subject to laws for taxation which do not yet take into account the peculiar risks and hazards of mining operations. For these properties, any balance after dividends and taxes will not provide much money for reinvestment in plant development. There remain, therefore, forty-two mines, each with an output of more than 5,000,000 pounds, from which comes more than 90 per cent of the gain in any one year's production. The variation in cost between these large producers over a series of years is about two cents a pound, and for the smaller from two to eight cents. Reasonable adjustments of existing contracts have already been made between the mines, the smelters and the refineries, and the capacity of the smelters and refineries at present re-

quires no increase in order to handle the domestic output and our foreign imports. The vital question, therefore, is what price fixed will afford the assurance necessary to induce these larger copper companies, some of which are high cost and some low cost producers, to increase to the utmost their developed as well as their yet undeveloped, but known, ore bodies? War is naturally a laggard in its industrial control, consuming accumulated supplies never intended for its use, and allowing production by so much and more to decrease, until essential industry is organized to obey its command for the development of all available sources. The spirit of war, whether its aims are conquest for a dominant place under the sun, or for human freedom and organized peace among the peoples upon the earth, consumes, until the issue is decided, all resources; and always the necessary next steps will be taken for the sake of national safety.

The industry at every stage of production faces high costs, with scarcity and inefficiency of labor cutting down seriously plant per unit output. The result, so far in 1918, is a probable further decrease in supplies of refined copper of 100,000,000 pounds. Since the first announcement of the government determined price, the shares of four of the largest producers have shown, as of July 1, 1918, a shrinkage of about $50,000,000. Present conditions and the excess profits tax do not encourage these larger copper companies to reinvest their earnings, or to raise new capital to increase plant output. In fact, if one were to assume a 5 per cent allowance for amortization and an 80 per cent excess profits tax, an increase of mining capacity at this time would mean for a going mine a waste of principal and of ore reserves, even if no account were taken of extravagant costs of new installations. As a copper mine is a liquidating asset, production and increases must net for its stockholders

profits somewhere near the normal average, considering the past and the future, as well as the life of the mine; otherwise the copper deposits will be left undisturbed and production will not increase. Steadily rising costs have thus their retarding effect. Even if a maximum price is once more named and allowed to continue, the industry, which because of government needs must increase its production, will nevertheless soon bring to the War Industries Board the questions of what reasonable mining profits are, and on what capitalization, depreciation, and amortization, the large producers can figure. Not until such questions have been answered can the industry itself be stabilized for purposes of maximum production, nor can the government know whether, under its coöperative control, it can secure through private companies adequate supplies. To this end it is a question whether the prices, first of 23½ cents, and now of 26 cents, have not accomplished all that is possible under existing conditions. The price can be again advanced as far as necessary to assure reasonable profits, but hardly far enough to secure adequate production. Detailed prices affecting different stages can be determined; or both a maximum and minimum price established for a definitely long period of time; or the possibility of speculative profits can be restored by providing that increased production above any one mine's best maximum shall be free from " excess profits " taxation during the war. Too much of uncertainty and too precarious a business risk even then exists, and especially so with judgment and action dependent upon the duration of the war, on present high costs, and on the possible changes in economic and social conditions after the war. There remains the possibility of government coöperation in enlarging at once the facilities of production in some of the mines of lowest cost per unit of man-

power, and in the end and only as a last resort, the actual commandeering of the mines. With the copper industry so highly centralized and also its large capitalized wealth, government control has so far proved easily effective. It has had to use only the compulsion of motives of self-interest, and yet on the producers' side it has been shown that more than this minimum response has been given. Since price-fixing began, the whole trade readjustment has been made with such exceptional smoothness, and has been withal so efficiently managed, that it will prove difficult, as well as a solution of doubtful expediency, to lessen the efficiency of the present established unity of control, especially if it is in any way to break up this complicated organization as already established.

Whatever may be the probabilities as to successive price determination in the future, and admitting that the increase over pre-war prices for copper has been 85 per cent as against larger increases in other products, the War Industries Board is, nevertheless, assured that the producers are giving their best and most loyal endeavor in spite of the uncertain economic conditions. Since our entry into the war no charge of profiteering has been justified against the copper industry, and government direction and coöperation have proved absolutely essential. Government price-fixing carries with it the responsibility for a system of distribution, the assurance to capital of a return, however temporarily reduced by taxation, and the prevention of strikes through adjustment of labor demands. Ultimately, the government must give its help in controlling high costs, so that an adequate production may be secured and victory won. For these ends our democratic government has found it necessary to delegate to its representatives, a few men chosen by the President, these great quasi-

judicial powers over the nation's industrial life, and while the Price-Fixing Committee has thus far exercised its authority only by fixing a maximum price for refined copper, its continued responsibility and the assured coöperation of patriotic endeavor within the industry will guarantee that the supply of copper shall not fail in meeting the war needs of our own government and of the Allies.

LEWIS KENNEDY MORSE.

AN ESTIMATE OF THE STANDARD OF LIVING IN CHINA

SUMMARY

I. Purpose: bearing on other investigations and an example of real economic pressure, 107. — II. Source of data: investigations made at Tsing Hua College, Peking, China, 108. — III. Limitations: an intensive survey of one district and not necessarily typical of the whole country, 110. — IV. Classes represented: Chinese and Manchu villagers, 112. — V. Tables: five tables classifying incomes, average amount expended for various purposes, per cent expended for various purposes, and sundry other items by expenditure groups, 113. — VI. Analysis of tables, 119. — VII. General conclusions, 122. — VIII. Comparison with other investigations: Engel, Mrs. More, Chapin, and the United States Bureau of Labor, 123. — IX. How it is done: the maintenance of a starvation standard, 124. — X. The cost, 127. — Figure I: a comparison of the extremes of variation in the percentage of expenditure for various purposes between the highest and the lowest income groups in five well known investigations, 123. — Figure II: a comparison of the percentage and average expenditures of 195 Chinese and Manchu families, 126.

I. Purpose

Two purposes are in mind in making the present study of family expenditures in a rural suburb of the city of Peking, China. The first is its bearing on other similar investigations made in this and in other countries and on the conclusions reached by Engel [1] in the fifties and modified by more recent students of the problem. The second is to present to the well-fed Oc-

[1] This study of family expenditures and the application of Engel's Law in a little district in North China is but a fragment of a larger study of the Standard of Living in China on which the writer has worked for some three years at Tsing Hua College (the American Indemnity College) in Peking, China, and to complete which he is returning to that place this year. Being but a chapter from a larger work, some phases of the problem will seem inadequately treated but this is because they are being more fully discussed in other connections.

cidental, who thinks he knows by experience what economic pressure is, a picture of real pressure as it exists in the Orient and an example of the limits to which a minimum plane of existence can be pushed.

II. Source of Data

The data here presented are gathered from an intensive study of the incomes and expenditures of one hundred and ninety-five Chinese and Manchu families and are supplemented with a study of the expenditures of ninety-three employees at Tsing Hua College. The one hundred and ninety-five families are scattered at random over the entire district surrounding the college which is located some five miles outside the west gate of the city of Peking. While many of them are farmers they are all villagers and come from more than a dozen different villages. The families of the employees studied are scattered over the entire province of Chili in which the city of Peking is located.

The investigation was made by the students of the college under the supervision of the Department of Social Science, a regular part of the course in Political Economy each year being a survey of this sort. It would be difficult to find a more carefully selected group of students than these who are gathered from every province in the country to be prepared for advanced study in America. These future leaders are keenly alert to China's social and economic problems and make, not only careful and efficient but sympathetic investigators, to work with whom has been a joy. From this source and from the work of a paid investigator, the following and other varied material has been accumulating since 1914 when the task was first undertaken. This investigator was a young man with a family who

lived the life of the people in one of the near-by villages. He understood their problems, for the standard of living he was investigating was the standard he was maintaining, but he spoke English and was much more intelligent, having been educated in a Mission College. The assistance of the Tu See, or Military Governor of the district, must also be acknowledged. This gentleman, being convinced of the sincerity of our effort, even went so far as to turn over to us the official records of his Yamen, or office. This consisted mainly of a census of the district made about 1912. It was translated by the students and proved a valuable source of information.

A partial list of the studies made during this time includes — a study of the living conditions in the villages of the district, a study of family budgets, a study of the budgets of servants and their families, a study of how the college servants spend their time, a social survey of the village of Chen Fu, and numerous population studies of the district.

In making this study a complete questionnaire was prepared, which was studied in detail by the students before being taken into the field. Here almost insurmountable difficulties were met but patience and perseverance rewarded us with a small number of reports, the trustworthiness of which we could be reasonably certain of. In order to obtain the one hundred and ninety-five cases here represented more than three hundred families were examined; and of more than two hundred reports of college employees, less than one hundred could be used. The reason for this large percentage of unreliability was the ignorance and suspicion of those investigated. As it was in no case possible for the ignorant villager to make out his own budget or even give very definite answers, and as he would have refused if he had realized what the investigator was about, the

cross-examination method had to be patiently and persistently used. Repeated visits had to be made and the investigator had to fill out his questionnaire from the fragmentary information he secured from time to time. This did not secure statistically exact information, but it did insure uniform and fairly accurate reports, provided the answers were not purposely misleading. That they were in so many cases evidently false and had to be discarded is amply explained by the healthy fear the native of this land of the bitter struggle normally has of any and of all outsiders who may be trying to exploit him. Even the college servants had to be officially assured that we had no ulterior motives in asking these questions.

Three years of experiment and weeding out makes us confident that the cases we have retained are representative and trustworthy. It has been our aim to err on the side of strictness rather than too great leniency. In some cases the evident crookedness of the individual investigated has led us to discard otherwise normal reports. In general, however, the discarded data were either incomplete or were so far from normal in some one or more expenditures as to make them obviously impossible. Here it has been necessary to rely very largely on the judgment of the Chinese investigators in discovering these errors.

III. Limitations

Only those who have lived in China can sympathize with the investigators in the difficulties encountered in making the present survey. Ignorance, superstition, fear, and even hate have worked against us. We have tried to use strictly scientific methods and to produce statistically correct results but at best we can claim no more for our results than that they are estimates which

we have so carefully studied, checked, and rechecked that we feel very sure of our ground. For this reason we are venturing to present them in statistical form, tho statistical accuracy in the sense that we know it from the studies of Dr. Chapin and Mrs. More has been, from the nature of the case, impossible. We venture also to compare these results with those obtained in Europe and America because they so clearly show the same general tendencies in spite of the tremendous difference in the standards of living.

It must be definitely understood that this is an intensive study of a particular district rather than an extensive study of the whole country. We cannot even be sure that it is a fairly representative plot. It represents the actual living conditions in a little district of less than seven square miles to the northwest of the capital. It is called the First Division of the Western Suburb, and in these few square miles is supported a population of more than eight thousand people. There are eighteen villages, and more than three square miles are occupied by the deserted gardens of princes and the famous, now ruined, palace of Emperor Chen Lung. This give us a density of population scarcely equaled in many of our smaller American cities.

The individual character of the problem is complicated by the fact that the district is largely occupied by the now destitute Manchus who formerly lived here in opulence and ease on the tribute money exacted from the conquered Chinese. Today the Chinese are masters, and all outside income has ceased with the exception of a small pension doled out to them by the deposed imperial family. Their condition in this period of transition and the provision which will have to be made for their future constitute one of China's foremost social problems.

Whether or not these data are typical of the Orient or even of China only time and other similar studies can tell. The Chinese associated with me in the work feel that they are very exceptional and that other parts of the country will make a better showing, but American friends from the south of China are under the impression that that section of the country will register an even severer economic and population pressure.

Therefore we are justified in taking this study only for what it is: a statistical estimate of the standard of living actually obtaining in a small district some five miles outside the capital of the Chinese Republic.

IV. The Classes Represented

Three distinct classes of people are studied in the following tables only three of which can be combined and these not with entire satisfaction. Their value lies, however, not in our ability to sum them up in one table but the manner in which they complement each other. Each very definitely shows precisely the same main tendencies. As the studies of these classes were made independently and at different times, this constitutes the strongest single proof of their reliability.

The one hundred and ninety-five families in Tables II and III are divided into Chinese and Manchus. The different characteristics of the two peoples, the difference in their standards and morality, and the difference in their industry and source of income, make these two tables of value for purposes of comparison but difficult to combine. We find that within the same expenditure group the relative importance of the same item of expenditure varies greatly. The Chinese have no cases in the lowest expenditure group and the Manchus have no cases in the highest. For this reason

it has seemed best to omit all data in these two groups, in the final table combining the entire one hundred and ninety-five cases.

The families represented have been taken at random from the whole district. They represent farmers, mechanics, tradesmen, day laborers, drivers, carpenters, barbers, and in fact all classes from beggars to gentle folk. No attempt has been made to choose one class or one level. Any case presented, no matter what the class or status, has been retained if trustworthy.[1]

The servants (Tables IV and V) represent a class by themselves and are of only supplementary value to the study. They have regular incomes and are furnished with housing and light and fuel. They can get good food (according to their standards) at a minimum cost, and they regularly send a large proportion of their incomes home to their families in case they depend on them for support. Such budgets cannot, of course, be compared with the above general family budgets.[2]

V. The Tables

Table I compares the distribution of Chinese and Manchu incomes. The median in each case falls in the $90–$109 group, but the Manchu has a larger number in the lower income groups and the Chinese in the higher.

A still more important fact is that 75 per cent of the income of the Manchu family is derived from the pension and the house which is given with it. Only 13

[1] Approximately one-third of the men represented in the families investigated are men with trades, one-third are farmers, one-sixth are small dealers, and one-sixth are common laborers.

[2] In another study of the expenditures of college employees they were found to have an average income of $93.71 of which an average amount of $39.91 was sent home to their families. Of the families of servants 63 per cent earned by their own efforts less than the amount sent home to them and 31 per cent earned nothing at all.

of the remaining 25 per cent comes directly from an occupation. In the entire district where there are more Chinese than Manchus two hundred and eighty-five Manchus are reported as without occupation as against ninety-one Chinese. The Manchu does not like to work. He has been known to pull up the brick tiles of his floor

TABLE I. A COMPARISON OF THE INCOMES OF CHINESE AND MANCHU FAMILIES

Income in Chinese Dollars	One Hundred Chinese Families	Ninety-five Manchu Families
30– 49	0	9
50– 69	11	15
70– 89	14	21
90–109	26	24
110–129	15	12
130–149	13	11
150–169	8	3
170–189	2	0
190–209	5	0
210–229	2	0
230–249	3	0
250–269	1	0

and sell them first. In one village of some forty families three-quarters of the homes were thrown open to the soldiers of the near-by barracks and a thriving business in prostitution was done. Children are an economic asset. This is a striking indication of the Manchu problem. The Chinese living and working in the same district have no pension and yet are in much better economic condition and live happier and more useful lives.

A comparison of the distribution of expenditures (see Table II) shows the same tendency. For Chinese the median expenditure group is \$90–\$109 while for Manchus it is \$70–\$89.

Tables II and III show respectively the percentage and the average expenditures for various purposes of one hundred and ninety-five Chinese and Manchu families. For purposes of comparison the one hundred Chinese and the ninety-five Manchu families are treated both separately and collectively. In addition the average income, average expenditure, average surplus and deficit, and average size of the family are shown for each group.

Correlation is according to expenditure rather than income. Seven $20 classes are used, beginning at $30 and ending with $150 or over. Reducing this to American money the range would be from $15 to $75 and over. Investigations made in this country generally use a range of from $200 to $1500. A comparison of the two shows a gulf which cannot be accounted for by the greater purchasing power of the dollar in China nor yet by the fact that most American investigations have been made among city dwellers while this is a rural community. Making allowance for every difference of this sort we still have a discrepancy for which it is possible to account only by the great difference in the standard of living.

In none of these tables has the attempt been made to reduce Chinese to American money owing to the constantly fluctuating exchange between the two countries and the difference between the *real* value of the two dollars. The writer has seen the American dollar fluctuate more than one hundred points in value in the space of a single year in China. For the five years ending January, 1916, the average value of the American dollar in Chinese dollars was a fraction less than $2.25. In general, however, where the actual exchange of money is not concerned, it is customary to figure on an exchange of two for one.

TABLE II. EXPENDITURES OF ONE HUNDRED AND NINETY-FIVE CHINESE AND MANCHU FAMILIES

Expenditure Groups by $20 Classes	Size of Family	No. of Cases	Per cent Deficit or Surplus of Total Income	Per cent Total Expenditure of Total Income	Per cent of Total Expenditure				
					Food	Clothing	Light and Fuel	Rent	Miscellaneous
ONE HUNDRED CHINESE FAMILIES									
$30–$49	..	..	..	..	..	..	..	..	..
50– 69	2.5	11	..	100.0	76.9	5.1	7.6	9.0	1.4
70– 89	3.2	14	2.3	97.7	80.3	4.3	5.6	7.9	1.9
90–109	4.2	32	2.2	97.8	78.0	5.9	5.8	8.0	2.2
110–129	4.3	12	1.7	98.3	72.7	9.0	7.5	7.6	3.1
130–149	4.5	14	3.8	96.2	72.4	8.9	7.3	7.3	4.1
150 Over	5.0	17	2.4	97.6	72.0	9.8	5.7	6.8	5.6
NINETY-FIVE MANCHU FAMILIES									
$30–$49	2.5	8	– 4.5	104.5	82.0	.6	4.5	13.0	..
50– 69	4.5	9	– 3.7	103.7	82.0	1.3	4.1	11.2	1.3
70– 89	4.4	30	– 2.5	102.5	77.0	4.4	4.9	10.2	3.5
90–109	4.8	26	2.3	97.7	72.5	5.5	7.0	8.8	6.2
110–129	4.1	12	6.6	93.4	68.6	8.5	6.9	7.2	8.8
130–149	6.1	10	1.2	98.8	68.5	7.9	6.7	7.0	9.9
150 Over	..	..	..	..	..	..	..	..	..
TOTAL OF ONE HUNDRED AND NINETY-FIVE CHINESE AND MANCHU FAMILIES									
$30–$49	2.5	8	4.0	104.0	..	..	..	..	..
50– 69	3.4	20	1.5	101.5	79.0	3.4	6.0	9.9	1.3
70– 89	4.0	44	.8	100.8	77.9	4.4	5.1	9.4	3.0
90–109	4.4	58	2.8	97.2	75.2	5.6	6.3	8.4	4.0
110–129	4.2	24	4.0	96.0	70.5	8.7	7.2	7.5	5.9
130–149	5.1	24	3.0	97.0	70.8	8.5	7.0	7.1	6.6
150 Over	5.0	17	2.4	97.6	..	..	..	..	..

TABLE III. AVERAGE EXPENDITURES OF ONE HUNDRED AND NINETY-FIVE CHINESE AND MANCHU FAMILIES

Expenditure Groups by $20 Classes	Average Total Income	Average Deficit or Surplus	Average Total Expenditure	Average Expenditure for				
				Food	Clothing	Light and Fuel	Rent	Miscellaneous
ONE HUNDRED CHINESE FAMILIES								
$30–$49	....	....	....	....	....	....	....	....
50– 69	$59.0	....	$59.0	$45.3	$3.0	$4.5	$5.3	$ .8
70– 89	78.5	$1.8	76.7	61.5	3.3	4.3	6.1	1.5
90–109	100.2	3.2	97.0	75.7	5.7	5.6	7.8	2.1
110–129	119.8	2.1	117.7	85.6	10.6	8.8	9.0	3.7
130–149	138.8	5.3	133.8	96.9	12.0	9.8	9.8	5.5
150 Over	188.8	4.5	184.1	132.4	18.0	10.5	12.4	10.2
NINETY-FIVE MANCHU FAMILIES								
$30–$49	$40.1	– $1.6	$41.8	$34.2	$ .3	$1.9	$5.4	....
50– 69	57.6	– 2.2	59.8	49.1	.8	2.4	6.6	$ .8
70– 89	74.8	– 1.8	76.6	58.9	3.4	3.8	7.8	2.7
90–109	101.5	2.4	99.1	71.8	5.5	6.9	8.7	6.1
110–129	126.2	8.0	118.2	81.1	10.0	8.1	8.5	10.4
130–149	139.5	1.7	137.8	94.5	10.9	9.2	9.6	13.6
150 Over	....	....	....	....	....	....	....	....
TOTAL OF ONE HUNDRED AND NINETY-FIVE CHINESE AND MANCHU FAMILIES								
$30–$49	$40.1	– $1.6	$41.8	....	....	....	....	....
50– 69	58.5	– .9	59.4	$47.0	$2.0	$3.6	$5.9	$ .8
70– 89	76.0	– .6	76.6	59.7	3.4	3.9	7.2	2.3
90–109	100.8	2.8	97.9	74.0	5.5	6.2	8.2	3.9
110–129	123.0	5.0	118.0	83.3	10.3	8.5	8.8	7.0
130–149	139.7	4.2	135.5	95.5	11.5	9.5	9.7	8.9
150 Over	188.8	4.5	184.1	....	....	....	....	....

Expenditures are classified under the usual five heads — food, clothing, light and fuel, rent, and miscellaneous. Under the first four are included all subsistence wants while under the last must be included that indefinite, always growing, ever insistent class of needs amongst which are education, books, travel, recreation, social obligations, medical attendance, insurance, spending

TABLE IV. EXPENDITURES OF NINETY-THREE SERVANTS

Expenditure Groups by $20 Classes	No. of Cases	% of Total spent Home	% of Total spent on Self	Per cent of Total Expenditure on Self for			
				Food	Clothing	Other Necessities	Miscellaneous
$30–$49	7	4.5	95.5	84.7	13.2	1.4	.7
50– 69	13	25.0	75.0	76.0	19.8	2.0	1.2
70– 89	12	36.0	64.0	70.0	22.2	3.0	2.5
90–109	51	47.0	53.0	69.5	18.5	8.7	3.6
110–129	10	53.5	46.5	63.0	21.0	10.8	6.1
130–149	..	..	..	..	..	..	..
150 Over	..	..	..	..	..	..	..

money, et cetera. It is a nice little problem to estimate what per cent of the total expenditure can be devoted to each of the above when less than a dollar a year is available for miscellaneous expenditures. The results here shown make it evident that the standard of living is to be measured not by the per cent of the income spent for food but by the per cent remaining for these miscellaneous purposes after the mere subsistence wants have been satisfied. In neither Mrs. More's nor Dr. Chapin's studies do we find the per cent of expenditure for food decreasing regularly as the income increases. The irregularity in the case of Dr. Chapin's study is hard to explain. In neither of the above two cases would it be possible to use this per cent as an index.

In Tables IV and V the expenditures for servants are presented in the same general manner as for Chinese

and Manchu families in Tables II and III. Owing to the different conditions obtaining, as indicated above, the purposes of expenditure are slightly different. The general expenditure is divided into the amount sent home and the amount spent on self. Expenditures on self are divided into food, clothing, other necessities, and luxuries. The same expenditure groups are used.

TABLE V. AVERAGE EXPENDITURES OF NINETY-THREE SERVANTS

Expenditure Groups by $20 Classes	Average Total Income	Average Am't sent Home	Spent on Self				
			Total	Food	Clothing	Other Necessities	Miscellaneous
$30–$49	$44.5	$ .3	$42.5	$36.0	$5.5	$ .6	$ .3
50– 69	61.0	15.5	45.5	35.0	9.0	.9	.5
70– 89	81.0	29.0	52.0	36.5	11.6	1.6	1.3
90–109	99.0	46.0	53.0	36.7	9.8	4.6	1.9
110–129	117.5	63.3	54.2	34.0	11.2	5.5	3.3
130–149	..	..	..	..	..	..	..
150 Over	..	..	..	..	..	..	..

VI. ANALYSIS OF TABLES

Surplus and deficit. All Manchu families show a deficit till an expenditure of $90 is reached. The record for Chinese is much better, as in even the lowest expenditure group there is no deficit and at $70 they begin to save. Deficits go as high as 4 per cent and, omitting one group which is very exceptional, the surplus attains the same per cent.

Food. The average expenditure for food increases as the general expenditure increases, but not proportionally, for the per cent decreases. This is regularly demonstrated by the Manchus and Chinese, separately and together, and by the servants. The per cent expended for food varies from a maximum of 83 per cent for Manchus in the lowest expenditure group to a minimum of 68 per cent for the same people in their

highest expenditure group. The minimum average expenditure is $34.20 per year for an average family of 2.5 Manchus, and the maximum is an average of $132.40 for a family of 4.5 Chinese. The average expenditure for food for servants remains in all groups very close to $36 which is the regular cost of board for servants at the school.

The interesting thing to note here is that we have a wider range of variation among the Manchus than among the Chinese in the per cent spent on food. The reason is that the thrifty Chinese are less willing to cut down on food for the sake of luxuries than are their former masters, the Manchus. This tendency we shall see again.

Clothing. In every case the average amount and the per cent spent for clothing show a marked tendency to increase. The per cent spent on clothing varies from .7 per cent to 9.8 per cent and the average amount varies from $.30 to $18. The Chinese spend both a larger per cent and a larger average amount than do the Manchus on this item. Here is another place where the Manchus can cut down in order to get the luxuries he once was used to. The servants, due to the character of their work spend a relatively large amount on clothing.

Light and fuel. The average amount spent on light and fuel shows a marked tendency to increase and the per cent shows a slight tendency in the same direction. In other investigations the per cent for this item either decreases or remains the same. The reason for this difference lies in the fact that, until an expenditure of $90 is reached for both Chinese and Manchus, the family cannot spend a sufficient amount for this purpose and has to make up by gathering fuel from the fields. Six dollars is the minimum amount with which a family can do, and to spend more than $10 means luxury. A

quarter of the Chinese and nearly half of the Manchus spend less than $5 for light and fuel. For servants these things are furnished.

Rent. Rent in this district is comparatively low. It ranges from $5 to $12 per year, and amounts to from 5 per cent to 12 per cent of the total expenditure. The best house in the district can be rented for $15 and would be fairly comfortable as a shelter for stock.

Servants are housed at the college.

Miscellaneous. The average amount available for miscellaneous expenditures ranges from nothing for Manchu families of the lowest class to a maximum of $13.60 for the same people in their highest class. The range for Chinese is much more modest. Their lowest class has $1.40 and their highest has $5.60. We have already seen the reason for this lies in the willingness of the Manchu to cut down on necessities in order to save for this item.

Luxuries combined with "other necessities" for servants show them to spend a larger proportion of their incomes for this purpose than the above families do. Probably coming in contact with a higher standard of living in their work is responsible for this.

Average amount sent home. Among the servants the big item is the amount sent home to the families dependent on them. The average amount spent on self varies from $42.50 to $55, but the average amount sent home varies from less than $1.00 to $63.30. Living among them has been largely standardized, which accounts for this large surplus.

VII. General Conclusions

Four general conclusions may be reached from the study of the foregoing tables.

1. As the general expenditure increases, the average size of the family is larger.

2. As the general expenditure increases, the average amount spent for food and for rent increases but the per cent shows a regular and definite tendency to decrease.

3. As the general expenditure increases, both the average amount and the per cent spent for clothing and miscellaneous items show a regular and a definite tendency to increase.

4. As the general expenditure increases, the average amount spent for light and fuel increases perceptibly but the per cent shows only a slight tendency in the same direction.

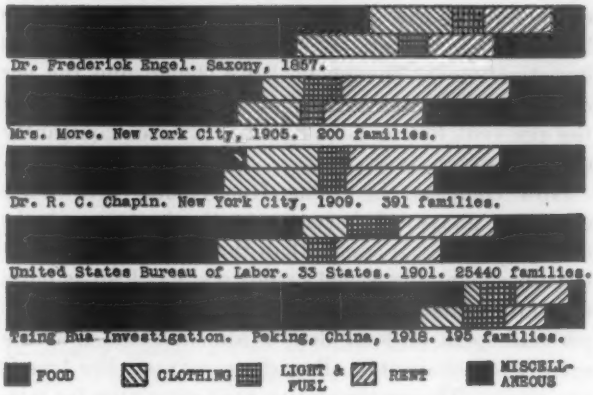
The above conclusions vary from those reached by Engel in the same manner that the American investigations have varied. They hold for food and luxuries (miscellaneous) but not for the rest. As in America the per cent spent for clothing increases and the per cent spent for rent decreases. In China, however, the per cent spent on light and fuel shows a slight tendency to increase while in America it decreases. This is explained by the fact already mentioned that many families in the survey gather from the fields half the fuel they consume, and some of them, most of it. This accounts for the rapid increase in the average expenditure for light and fuel as the family income becomes large enough to relieve the family of this burden.

VIII. Comparison with other Investigations

Figure I is a comparison of our investigation with four other investigations of the subject. The purpose of the

FIGURE I

A COMPARISON OF THE EXTREMES OF VARIATION IN THE PERCENTAGE OF EXPENDITURE FOR VARIOUS PURPOSES BETWEEN THE HIGHEST AND THE LOWEST INCOME GROUPS IN FIVE INVESTIGATIONS[1]



[1] The Expenditures in Five Investigations

Investigation	Income Groups A — Lowest B — Highest	Per cent of Total Expenditure				
		Food	Clothing	Light and Fuel	Rent	Miscellaneous
Engel ..... A	$225- 300	62.0	16.0	5.0	12.0	5.0
B	750-1000	50.0	18.0	5.0	12.0	15.0
Mrs. More ..... A	200- 400	44.2	7.3	6.5	30.5	11.5
B	1200-1500	39.5	11.3	4.5	18.0	26.7
Dr. Chapin ..... A	400- 499	40.8	13.0	5.6	26.8	14.8
B	1500-1599	36.8	16.8	4.1	16.3	26.0
U. S. B. of L ..... A	Under 200	50.9	8.7	7.9	16.9	15.6
B	1200 Over	36.5	15.7	5.0	17.4	25.4
Tsing Hua ..... A	30- 49(a)	79.0	3.4	6.0	9.9	1.3
B	130- 149	70.8	8.5	7.0	7.1	6.6

(a) Chinese dollars. Exchange value fluctuates greatly but is normally about $.50.

comparison is to show the range of variation within and between them. In each case the lowest and the highest income groups are contrasted. The three American studies do not vary greatly. In general, the three belong to the same class and show the same general characteristics. Engel's study varies mainly in that a larger per cent is spent for food and a smaller per cent remains for miscellaneous expenditures. A similar study made in Massachusetts in 1885 shows the same characteristic, with 64 per cent spent for food in the lowest income group. If it were possible to push this investigation far enough back we should find the per cent spent on necessities constantly increasing and the per cent left as a margin for luxuries constantly decreasing.

Now compare the Tsing Hua results with those obtaining above. In every case the best record obtained for China is poorer than the poorest recorded in the other four, even Engel's study made in Prussia more than fifty years ago and the one made here in 1885. The per cent spent on food alone is almost as much as the entire per cent spent on all existence wants in the American cases. The maximum per cent remaining for miscellaneous expenditures in China is 6.6 per cent while, in America the lowest is nearly twice that amount. Many of the families in our investigation reported that the mere buying of the most pressing necessities of life thrust them into debt.

The comparison in this figure shows vividly what is meant by a minimum plane of existence.

IX. How it is Done

In America a family which spends half its income on food and has less than one-fifth of it left for miscellaneous expenditures is thought to be in a very bad way,

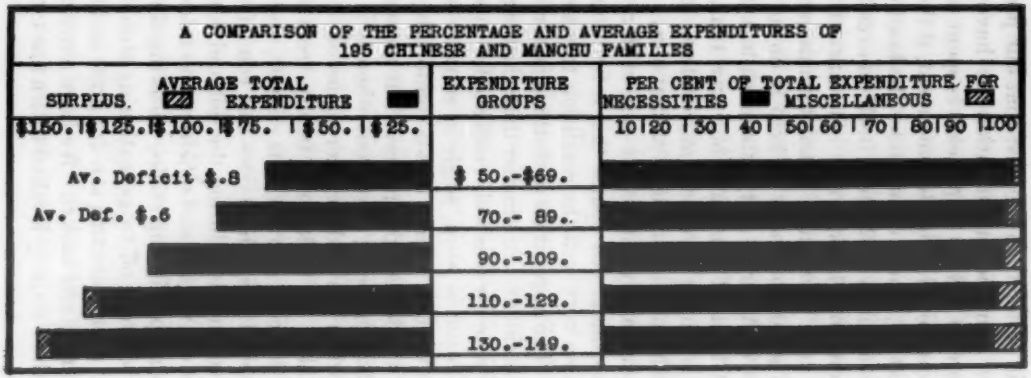
but this is better than the best that our present study can show. In the investigation we have individual cases where as high as 90 per cent is spent for food and a larger number in which tea and meat, if they could be afforded at all, would come under the head of luxuries. How does a family of 2.5 feed itself on even 83 per cent of an income of $40 per year. The answer is that two meals of corn bread and salted turnips per day with plenty of good hot water to help it down would cost very little in America and costs much less than half as much in China. I must add, however, that, low as the standard is, I have never seen any evidence of the eating of dog flesh, rats, or any food of that sort.

The same family spends the sum of thirty cents per year on clothing. Of course this is fictitious accuracy but it shows very well the condition to which they are reduced. The acquisition of clothing is purely a matter of happy accident. In summer their clothing, tho dirty, is comfortable for it is well ventilated. In winter they suffer. Cotton is worn, single in summer and thickly padded in winter. Plenty of it is comfortably warm but people of the lowest groups have but a single suit, the cotton wadding being taken out when it is warm and replaced when the cold weather comes on.

If it takes $6 to keep a family from freezing to death in this cold North China climate, and if half the families spend less, where does fuel come from? This is answered any day during the fall and winter by the swarms of old women and children who infest the fields and highway picking up sticks, throwing clubs into the branches to break off twigs, gathering stubble from the fields, and even collecting the dry grass and leaves with a bamboo rake and basket. We have a saying in China that the whole country is raked with a fine toothed comb each year.

FIGURE II

A COMPARISON OF THE PERCENTAGE AND AVERAGE EXPENDITURES OF 195 CHINESE AND MANCHU FAMILIES



How can rents be so low? What sort of a house can one rent for $10 per year? Well, dirt floors are not expensive, thatch lasts a long time and, even if it does leak, rain does not always fall, and modern sanitary conveniences such as a screen of reeds, a hole in the ground, and an open gutter running to a hole in the wall and emptying into the road are not hard to install.

Now what does this family do for education, books, travel, recreation, social obligations, et cetera? What insurance do they carry and how much is laid aside for the rainy day? What would happen if sickness came? These questions are unanswered for us as they are for the native of this district. If sickness comes it means suffering and perhaps death. If the rainy day comes it means suffering and perhaps the same end. They can have all the luxuries, advantages, and insurance that from nothing to $15 per year can offer.

X. What is the Cost?

From the study of a large number of cases it appears that a family of five can live in comparative comfort (according to local standards) on $100 per year. This means that they can have enough food, tho simple and poor, live in a house which will at least shelter them from the elements, have at least two suits of clothes, have enough fuel so that they do not have to go out and gather it, and have five dollars left over for miscellaneous expenses which will give them meat on feast days and tea quite often, almost every week; while if there is no sickness, they may even make a trip to the temple fair back in the mountains.

What a picture of the struggle for existence! These people do get along, and the above family is happy and will consider itself fortunate to come out so well; but

what is the price they pay? Among people of this class life presents such a hard front that the struggle for existence cripples intellectual and spiritual growth even as it does physical development. Healthy virile amusements as the Westerner knows them are conspicuous for their absence. Efficiency and intellectual alertness are at the minimum and nervous reactions are slow. There is no surplus of energy because it is all used up in meeting the hard conditions which make mere survival a difficult matter. Ignorance, over-reproduction, congestion, low position of woman, lack of sanitation, epidemics, and a tremendous loss of "potential ability" — this is the price they pay.

C. G. DITTMER.

MADISON, WIS.

RAILWAY SERVICE AND REGULATION

SUMMARY

War as emphasizing inadequacy of transportation facilities, 129. — Extra burdens upon transportation due to the war, 130. — History, extent and consequences of insufficient transportation facilities in the United States, 133. — Statistics of car shortage since 1907, 135. — Reasons for inadequate transportation facilities, 143. — Traffic conditions compared with expansion of railway plant, 143. — Duty of railroads to furnish adequate equipment, 145. — Popular misconception of car shortage, 146. — Aggregate supply of railroad equipment sufficient in most years, 149. — Relation of railroads to each other in exchange and interchange of cars; recent disregard of car service rules; unfortunate results of the historical relations of shipper and railroad, 150. — Early facilities in excess of needs, 153. — Significance of increase in number of commission and middle men, 157. — Position of Interstate Commerce Commission on reconsignment, 159. — Responsibility of government regulation, 161. — Importance of adequate return upon investment and transportation facilities, 161. — Necessity for extension of federal authority over railway service, 166. — Esch-Pomerene law only a beginning, 167. — Comprehensive control of railway service necessary even with continuation of government operation or adoption of government ownership, 170.

THE world war with its abnormal demands upon the railways of this country has strikingly emphasized the inadequacy of our transportation system. The extra burden thus thrown upon the railroads has been due, among other things, to a larger amount of traffic, a falling off of water-borne tonnage, and unusual labor conditions. In the first five months after a state of war was declared to exist between this country and Germany, the railroads handled more freight tonnage than in any whole year previous to 1904.[1] On 51 per cent of the railroad mileage of the United States in the summer of

[1] Railroads' War Board, Official Information No. 18, November 27, 1917.

1917, there was an increase of 16 per cent, or 3,354,000,000 ton miles in one month. This was equivalent to adding 35,000 miles of railroad to that of the United States, with an average density of freight traffic on each mile equal to the average density of all railroads in the United States in 1915. This virtual addition to the fixed plant of American Railroads nearly equaled the total railway mileage of Germany in 1913 and exceeded that of Great Britain in 1914.[1] In the last annual report of the Pennsylvania Railroad Company,[2] it is claimed that the ton mileage of that system for the year 1917 exceeded by over 60 per cent the combined annual ton mileage before the war of all of the railroads in Great Britain and France.

That less water-borne traffic has been responsible for a part of this marked increase in rail traffic may be seen from the fact that vessels, not only from the Great Lakes but from our intercoastal trade, have turned to the more profitable ocean carrying trade. This shift is reflected in the percentage of our exports and imports which have been carried in American vessels since the war began. In the fiscal year 1914, this percentage was 9.7; in 1917, it was 18.6.[3] In the fiscal year 1915, there was a total of 335 vessels with 1,846,658 tons cargo in the coastwise trade from the Atlantic to the Pacific and *vice versa*. In the first half of the fiscal year 1917, there were but eighteen vessels with a tonnage of 97,363.[4] From testimony before the Newlands Committee, it appears that prior to the autumn of 1915 there never had been

[1] Railroads' War Board, Official Information No. 8, July 7, 1917.

[2] Seventy-first Annual Report (1917), p. 7.

[3] The figures from 1914 to 1917 (fiscal years) are as follows: 1914, 9.7; 1915, 14.3; 1916, 16.3; 1917, 18.6. Annual Report, Commissioner of Navigation, 1917, p. 101.

[4] Panama Canal Record, vol. x, p. 464. See also statement of Julius Kruttschnitt in hearings before the Committee on Interstate Commerce, U. S. Senate, 65th Congress, 2nd Session, pursuant to S. Res. 171, pp. 196, 197; hereafter referred to as Hearings on Government Control.

a record of a carload of grain moving from Oregon or Washington over the Union Pacific to the Atlantic Seaboard; that since that time, many thousand of carloads had been sent overland on that and other railways to Atlantic ports.[1]

Conditions in the labor market as a result of the war have made it difficult for railroads to maintain their former standards of efficiency. Losses of employees have been due to withdrawals to enter military service, as well as to enter industrial fields offering distinct advances in wages or salary. Consequently, the loss has not been confined to any one class. In December, 1917, the Railroads' War Board stated that the railroads generally were short-handed; that at that time some carriers reported a net shortage of 12½ per cent in the number of laborers, and a much larger percentage of loss in efficiency because of the necessity of filling vacancies with unskilled and inexperienced men.[2] In some engine houses the railroads were reported to be employing men who did not know the difference between a monkey wrench and a fire hook.[3] The effect of the loss in the lower tier of labor has been the more serious in view of the conditions which have affected immigration. Furthermore, unskilled laborers once secured by the railroads are constantly shifting to positions with industrial concerns, once they have learned of such possibilities. This has been true of large numbers of negroes that have been brought into northern states.[4] The last annual report of the Pennsylvania Railroad shows that that company hired 278,000 persons from all parts of

[1] Testimony of Judge Lovett in Hearings before the Joint Committee on Interstate and Foreign Commerce, 65th Congress, 2nd Session, pp. 772–775; hereafter referred to as Newland's Hearings. See also statement by Commissioner Hall in Hearings on Government Control, pp. 46–47

[2] Railroads' War Board, Official Information No. 19, December 5, 1917.

[3] Railway Age, December 14, 1917, p. 1082.

[4] Traffic World, November 18, 1916, p. 1008.

the country and distributed them over its system.[1] This is at least four times as many men as were usually hired in order to keep up its force.[2] All this has meant less efficient transportation service and a deterioration in the railway plant. Locomotives have been used longer before sending them in for repairs because of the heavy traffic to be moved; once in the shop, they have received less efficient repairing, and have limped out only to return and repeat the process. Little wonder there should have been such a locomotive shortage during the severe winter of 1917–18.[3]

These features of the transportation situation have been of sufficient importance to account for the inability of the carriers to meet the demands made upon them in the last two years. There is danger, therefore, that the war will receive much more consideration than it deserves as a direct cause of the inadequacy of our transportation facilities. The items above mentioned have received much attention in the press, while other less conspicuous but more fundamental factors, because more permanent, have not received the serious con-

[1] Annual Report, 1917, p. 5. President Rea observed, "The employment and training of these men was costly and seriously hampered operations, because many of them remained only a short time in the service." Ibid., loc. cit.

[2] The Railway Age, March 8, 1918, p. 490, states the number of new men hired by the Pennsylvania Railroad in 1917 as 177,000, and says "This is at least four times the number of men that had been taken on new in any previous year."

"The railways of the United States engaged in Interstate Commerce employ about 1,800,000 persons. If we include interurban and street railways, the number is increased to over two million. Now conceive, if you will, a great map of the United States on which each of these employees is represented by a tiny electric light. Some are moving along the familiar tangled lines indicating railway systems, but the greater number are stationary and grouped about the large terminals. Everywhere lights are being extinguished, sometimes by death, more often by the resignation or discharge of an employee; and everywhere new lights are appearing as new employees are hired. Five times a minute, 300 times an hour, 7200 times a day, employees are being lost and replaced. These figures are assumptions only, but they are conservative and probably far below the facts." From an article, "Mobilising Intelligence on American Railroads," by Norman Collyer of the Southern Pacific Railway, in Railway Age, February 22, 1918, pp. 419–421.

[3] See ibid., April 5, 1918, pp. 907, 908. Both the lack of men to do repair work and the character of the repair work done are reflected in the 1917 report of the Inspector of Locomotives to the Interstate Commerce Commission.

sideration to which they are entitled. Furthermore, in our regulation of railways in normal times, the charge which should be made for service has been emphasized. The character of the service itself has received too little attention.[1] It is therefore pertinent to inquire to what extent the transportation facilities of this country were inadequate even before the world war; to try to discover the causes for this condition of affairs; to examine the consequences of such inadequacy; and, finally, to suggest wherein our regulation and control of railways in future should give more attention to the sufficiency and efficiency of the service. Such a study of our transportation system is of value whether, as a result of the war, we have government ownership, or whether the roads be returned to their owners.

The extent to which the American transportation system has failed at times in the past to meet the demands made upon it, is very difficult to measure. Statistics of so-called car shortage register in a general way the inability of the railroads to move traffic which is offered to them; but, as will appear later, the popular view is narrow in assuming that the inability of carriers to meet the demands made upon them is necessarily due to a shortage of equipment. In January, 1907, the American Railway Association began the publication of statistics of car shortage.[2] Table I (Appendix, p. 175,

[1] See statement of Commissioner McChord, before National Association Railway Commissioners. Proceedings, 1908, p. 15.

[2] Fifty of the largest companies were chosen and asked to give facts concerning car shortages and car surpluses. The first report was made on January 2, 1907; the second on February 6, 1908. By that time the committee was so discouraged by the large car shortage that they did not make up another report until April, 1908. Then the American Railway Association met and instructed the committee to secure statistics every two weeks. These instructions were carried out after that with the exception of the period from October 15 to February 1, 1915, when the car surplusage was so great and railroad depression so marked that the American Railway Association temporarily discontinued the compilation as a matter of economy. After February 1, 1915, the statistics were compiled once each month by the Association. The U. S. Railroad Admin-

infra) gives these statistics from January 2, 1907, through 1917.[1] This table indicates the ability of the railroads to furnish equipment in various years and during certain seasons of the year. It will be observed from the column marked "Net Shortage" that conditions were acute in January and February of 1907; that the net shortage disappeared in July, 1907, and appeared again in September of that year and continued until the latter part of November. No net shortage appeared again until November of 1909, and then only to a minor extent. Not until the fall and winter of 1912 was there another net shortage, which was only a little less severe than that of the corresponding period of 1907, but it continued somewhat longer than in 1907. With the exception of a slight scarcity for about a month in the fall of 1913, no further net shortage appeared until the first of March, 1916. This continued for that month only; but was followed by another shortage beginning in September, which has continued since with varying degrees of intensity.

Examination of Table I and Chart I (based on data in Table I) shows that it is unusual for any car shortage to occur in the spring months and that it is heaviest during the autumn. The figures show that in April, 1908, there was a surplus of equipment of 413,338 cars; that from November, 1913, to March, 1916, there was a continuous surplus of equipment, the number reaching 200,000 even in the month of October, 1914, when the American Railway Association as an economy measure discontinued its statistics. When the Association resumed the col-

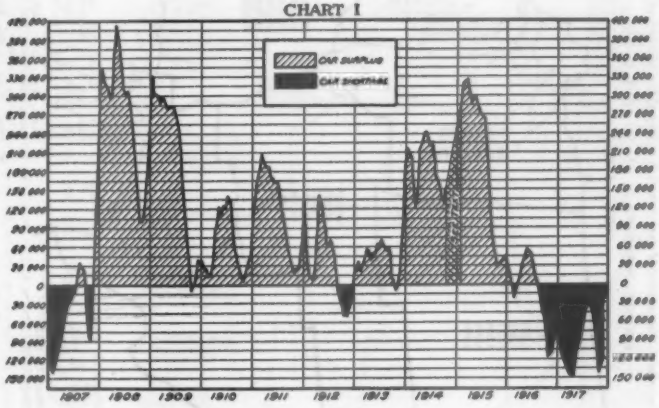
istration has not continued these statistics. See Proceedings National Association Railway Commissioners, 1908, p. 43. The figures in Table I have been taken from American Railway Association Bulletin No. 6, February 6, 1917, and from various later bulletins. Many valuable statistics also in Proceedings American Railway Association, vol. vii, pp. 522–575. See also House Report No. 1553, 64th Congress, 2nd Session, to accompany H. R. 20352, pp. 1–12.

[1] Statistics as given in Table I have not been continued since the railroads were taken over by the government.

lection of statistics on February 1, 1915, the surplus amounted to over 279,000. The shortage after the spring of 1916, as is well known, was coincident with a heavy war traffic.

Statistics of car location indicate that certain sections of the United States suffer much more than others on account of car shortage.[1] For example, box cars considerably in excess of ownership were on the lines serving what are known as New England, Southeastern,

CHART I



Trunk Line and Central Freight Association territories, represented on Map I [2] as groups 1, 2, 3, and 4. All the other groups were deficient in this class of equipment in comparison with their ownership. Southern, Southeastern and Trunk Line territory, represented by groups 2, 4, and 5 on Map II, are the sections that had less

[1] Car location statements are given in Proceedings of American Railway Association, vol. vii, pp. 524–575. More recent statistics were presented by F. B. Dow, attorney for Interstate Commerce Commission in Hearings on Senate Bill (636), May 3, 1917. Statistics formerly published by American Railway Association are now published bi-monthly by the U. S. Railroad Administration.

[2] Maps from testimony of Dow, ibid., loc. cit.

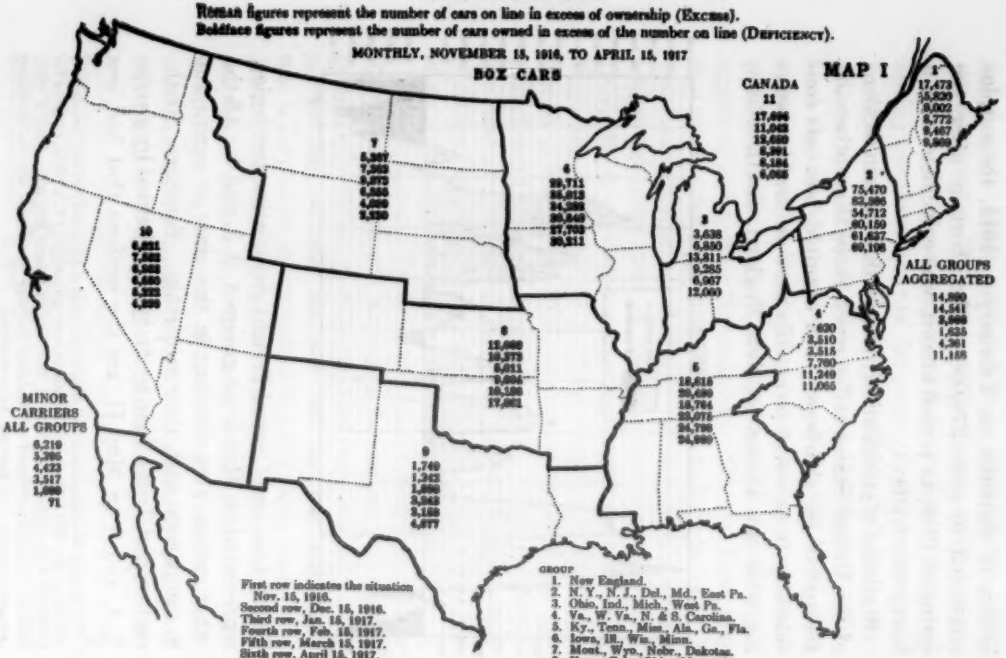
CAR LOCATIONS

Roman figures represent the number of cars on line in excess of ownership (Excess).
Boldface figures represent the number of cars owned in excess of the number on line (Deficiency).

MONTHLY, NOVEMBER 15, 1916, TO APRIL 15, 1917

BOX CARS

MAP I



First row indicates the situation Nov. 15, 1916.
Second row, Dec. 15, 1916.
Third row, Jan. 15, 1917.
Fourth row, Feb. 15, 1917.
Fifth row, March 15, 1917.
Sixth row, April 15, 1917.

GROUP
1. New England.
2. N. Y., N. J., Del., Md., East Pa.
3. Ohio, Ind., Mich., West Pa.
4. Va., W. Va., N. & S. Carolina.
5. Ky., Tenn., Miss., Ala., Ga., Fla.
6. Iowa, Ill., Wis., Minn.
7. Mont., Wyo., Nebr., Dakotas.
8. Kans., Colo., Okla., Mo., Ark.
9. Tex., La., N. Mex.
10. Oreg., Wash., Idaho, Nev., Cal., Utah, Ariz.
11. Canada.

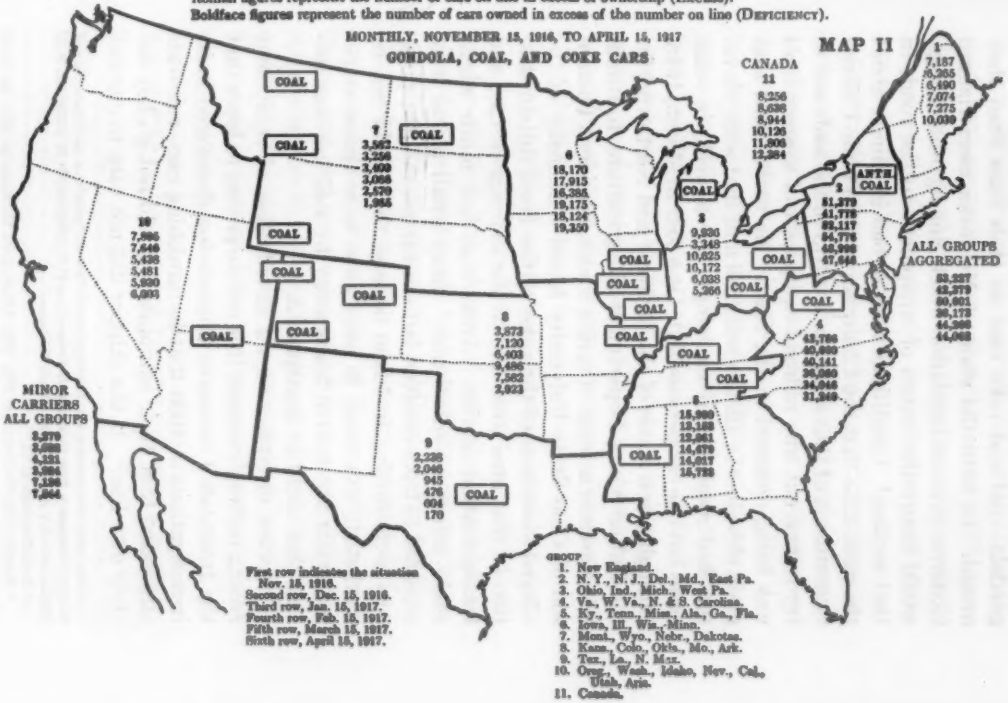
CAR LOCATIONS

Roman figures represent the number of cars on line in excess of ownership (EXCESS).
Boldface figures represent the number of cars owned in excess of the number on line (DEFICIENCY).

MONTHLY, NOVEMBER 15, 1916, TO APRIL 15, 1917

GONDOLA, COAL, AND COKE CARS

MAP II



gondola, coal and coke cars on their lines than they owned. In 1916 the state of Nebraska memorialized Congress to enact legislation which, among other things, would insure the return of equipment to the roads in that section.[1] Conditions were so bad in Illinois about the same time that the Chairman of the Public Utilities Commission of that state made a trip to the seaboard to try to find out why railroad equipment of western lines was being detained in the East. He maintained that grain elevators in Illinois were full and that some elevators had received but one empty car a week, in some cases but one car per month.[2] On a tour in March, 1918, through seven states of the far West and Northwest for the United States Department of Agriculture, to stimulate a greater acreage of spring wheat, President Thompson of Ohio State University found that many of the alleged violations of the rules of the Food Administration in that area were due to the shortage of cars and transportation service. Areas that had much wheat could secure no substitutes; many small places were reported to have received but one car per month; potatoes were rotting in Idaho because they could not be marketed; live stock in some areas were almost starving, while but twelve hours away by rail, hay was rotting that could be transported.

In view of such unequal distribution of equipment among railway systems, it is not surprising to learn that the Interstate Commerce Commission discovered in its investigations in 1906 that in furnishing cars, railroads stipulated that their equipment should not go beyond their own line.[3] If the shipper did not care to consent

[1] For copy of memorial, see Hearings before House Committee on Interstate and Foreign Commerce, 64th Congress, 2nd Session, on H.R. 19546 and H.R. 20256 and H.R. 20352, hereafter referred to as "Esch Hearings."

[2] Esch Hearings, p. 41.

[3] Kansas City Hearings, pp. 192, 196; Minneapolis Hearings, p. 137; St. Louis Hearings, pp. 3, 4, 7, 8, 36, 117, 118. See note 3, p. 139. See also Railway Age, April 26, 1907, p. 683.

to this arrangement, he received no cars. That the roads have continued to resort to this method of keeping their equipment at home is seen from the evidence which was given to Commissioner McChord at Louisville, Kentucky, in November, 1916.[1]

The consequences of the inadequacy of the transportation system have been so insistently forced upon our attention since the outbreak of the war that comment concerning recent conditions is unnecessary. But it is not generally appreciated that transportation has been carried on under intermittent embargoes upon freight for more than a decade. Conditions were so bad more than ten years ago that the Interstate Commerce Commission made investigations, taking testimony relative to conditions at widely separated points.[2] Substantially, all told the same story of failure of transportation facilities and resulting commercial embarrassment and loss.[3] The investigations of the Interstate Commerce Commission at that time showed clearly that the business offered to the carriers was far beyond the transportation facilities. The Commission was informed that farmers, especially in the Northwest, were unable to market their grain because of the inability of the carriers to serve them; and that grain was being stored on the ground in some instances in bins eighteen to thirty feet deep, and covering acres of ground.[4] The testimony taken by the Commission showed that the country elevators were

[1] 42 I. C. C. R. 657 (662).

[2] Testimony was taken relative to conditions in such widely separated areas as the lumber producing regions of Oregon and Washington, the Southern cotton belt, the West Virginia coal fields, and the grain fields of Iowa, Kansas, Nebraska, and the Northwest.

[3] Testimony in Senate Documents, 59th Congress, 2nd Session, Nos. 233 (pp. 1–275) and 333 (pp. 1–502). Document No. 233 contains the testimony taken at St. Louis and Kansas City. The testimony taken at both places is paged consecutively in this document, hereafter referred to as "St. Louis Hearings" and "Kansas City Hearings." Likewise Document No. 333 contains the testimony taken at Minneapolis and Chicago, hereafter referred to as "Minneapolis Hearings" and "Chicago Hearings."

[4] Railway Age, December 7, 1906, p. 722.

full because grain could not be shipped to important terminal elevators. Up to the time the Interstate Commerce Commission made the investigation, in the latter part of December, 1906, important terminal elevators had not been more than one-third full.[1] Naturally this meant much loss to the farmers, not only from grain spoiling or its destruction by vermin,[2] but also because grain buyers insisted upon much wider margins in all purchases, and hence offered a lower price to the farmer.[3] In some instances grain dealers refused to buy grain at any price, because of the uncertainty of getting it to market or the likelihood of damage through heating due to the unusual length of time it would be in transit.[4] Selling grain in terminal markets on contracts was extremely difficult if not impossible. Purchase at a loss was sometimes necessary to cover such contracts.[5] This uncertain movement of wheat and lack of transportation meant that flour mills were often forced to shut down, in some instances for two months at a time.[6] All this meant that farmers were forced to borrow money and pay interest on it and, in some instances, to pay storage and insurance on grain, which later they were compelled to sell at a reduced price. The president of a national bank in the Northwest presented to the Commission letters from 350 banks in his state that had accounts with his bank showing that farmers were obliged to hold their wheat because of lack of cars; and he indicated that altho ordinarily he would not be lending a dollar to

[1] 12 I. C. C. R. 561 (563).

[2] Chicago Hearings, pp. 396, 419, 420, 474, 475; St. Louis Hearings, p. 71, and Minneapolis Hearings, p. 117.

[3] Minneapolis Hearings, pp. 31, 97, 98–99, 113–114, 130, 133, 198; Kansas City Hearings, pp. 270–271.

[4] Kansas City Hearings, p. 212; St. Louis Hearings, p. 50; Minneapolis Hearings, p. 14.

[5] Minneapolis Hearings, p. 102.

[6] Kansas City Hearings, pp. 232, 270–271, 272; St. Louis Hearings, p. 48; Minneapolis Hearings, p. 133.

these banks at that time of year, he had within a sixty-day period extended credit to these correspondents to the extent of $600,000.[1]

There was much trouble also in the marketing of live stock throughout the important live stock areas.[2] Dealers waited for cars weeks and even months. In instances where it was necessary to drive live stock some distance to the station, it had to be kept in yards or small pastures while waiting for cars. This often meant shrinkage in the weight of fat cattle to the extent of 200 pounds per head. It was sometimes necessary to wait so long for cars that it was too great a sacrifice to market cattle, and they were driven back to pasture. Those who were forced to sell their live stock, after waiting for weeks for cars at one station, were compelled to drive them across the prairie from seventy-five to two hundred miles to another railroad, there again to find conditions but little better.[3] The president of the American Live Stock Association testified that in Texas the delays in shipping cattle extended from two months to "any indefinite length of time."[4] The secretary of the same Association testified that in Wyoming it had been necessary to hold sheep at the loading station from thirty to sixty days; and then in some instances it was necessary to trail them for two hundred miles across the country to another railroad.[5] It was sometimes necessary to dip sheep as many as three times while waiting for cars.[6]

[1] Minneapolis Hearings, pp. 119–120; 12 I. C. C. R. 564; for similar testimony by other bankers and elevator men, see Minneapolis Hearings, pp. 117, 132, 170.

[2] It was contended in the Kansas City Hearings (p. 148) that stock men of Panhandle, Texas, alone lost hundreds of thousands of dollars because of inability of railroads to furnish transportation.

[3] Testimony relative to the trouble live stock shippers had in securing railway service, in Kansas City Hearings, pp. 147, 148, 151, 153, 154, 155–158, 162, 163, 166, 173, 174, 175, 183, 190; St. Louis Hearings, pp. 69–70, 115–116; also Senate Doc. 311, 60th Congress, 1st Session (1908), Hearing on S. 3644, pp. 1–134.

[4] St. Louis Hearings, p. 145.

[5] Kansas City Hearings, p. 177.

[6] Ibid., p. 162.

Furthermore, when cars were furnished for live stock, trains moved so slowly that it meant much shrinkage before markets could be reached.[1] Railroads even provided contracts which it was said "shippers had to sign"[2] which gave the railroad the right to ask a shipper to unload at the terminal of their road in order to keep their equipment from going off their own line.[3] Hence shippers were often seriously limited in the markets they were able to reach without great inconvenience and loss.

In the South there was much trouble in the shipment of cotton. Railroad platforms were piled full, and it was stacked upon the ground.[4] Lumber mills found it impossible to run much of the time.[5] The President of the St. Louis Lumber Exchange testified before the Interstate Commerce Commission that it was impossible to sell lumber on contract.[6] This meant that building operations in many states were interfered with. Some building concerns of much stability were on the verge of bankruptcy.[7] All lines of business were of course much affected by the transportation furnished the coal mines; many mines were closed or operated but part time.[8] In 1906, in some places in the Northwest, schools and public utilities were without coal.[9] In some in-

[1] St. Louis Hearings, pp. 116, 147; Kansas City Hearings, pp. 162, 189.

[2] See Senate Doc. 311, 60th Congress, 1st Session (1908), pp. 81, 88.

[3] Copy of such a contract (the Atchison, Topeka & Santa Fe Railway Co.) given in ibid., pp. 81–87. Some railroads went to much expense in unloading dead carload freight in order to keep their own cars on their own lines. Kansas City Hearings, p. 226. Naturally all this unloading for shipment to destination in other cars meant terminal congestion.

[4] St. Louis Hearings, pp. 18–19, 20, 23.

[5] Ibid., pp. 62–64, 137; Chicago Hearings, pp. 387, 424–427; Minneapolis Hearings, pp. 196–197.

[6] St. Louis Hearings, p. 62.

[7] 12 I. C. C. R. 569.

[8] 12 I. C. C. R. 568; Minneapolis Hearings, pp. 27, 66, 67, 69, 73, 74, 76, 86–87, 171; Chicago Hearings, pp. 309, 431; St. Louis Hearings, pp. 20, 25, 37; Kansas City Hearings, pp. 143, 195, 199, 200, 203.

[9] Minneapolis Hearings, p. 235.

stances, railway fuel was used by cities;[1] in others, business establishments were closed and coal was given out in sacks to keep people from freezing.[2] Action on the part of the Interstate Commerce Commission was necessary in securing coöperation of railway officials in charge of traffic to give priority to rush coal shipments into some sections.[3] Coal cars were put even into passenger trains.[4] All this evidence reads much like that which has been in the daily press since the United States entered the war; but it must not be forgotten that the situation here described existed more than ten years ago without any abnormal war traffic to move.

In attempting to determine the causes for the above described inadequacy of transportation facilities in time of peace, attention may be given to the growth of traffic in comparison with the expansion of the railway plant, to the significance of large areas producing raw materials, to the responsibility of the railroads themselves, to the shippers' contribution to the situation, and finally to the program of government regulation.

According to statistics of the Interstate Commerce Commission, the ton mileage of the railroads increased about 118 per cent in the eleven-year period, 1895–1905 inclusive; while during the same period, the increase in railway mileage was about 21 per cent.[5] Three-fourths of this new mileage was in new sections that merely added to the congestion of the old.[6] James J. Hill told the Interstate Commerce Commission in 1906 that the

[1] Minneapolis Hearings, pp. 93–94, 128–129.

[2] Ibid., p. 171; Chicago Hearings, p. 309.

[3] Minneapolis Hearings, p. 92.

[4] Ibid., p. 284, testimony of Howard Elliott. The experience in this section at this time contributed toward the priority given in 1917 to coal destined for points beyond the Lakes in order that an ample supply might be transported before the close of navigation.

[5] Statistics of Railways in U. S., 1905, pp. 12, 67–69.

[6] Minneapolis Hearings, p. 295, testimony of J. J. Hill.

commerce of the country and its growth was against a stone wall so high that it was not possible to see the top of it. He maintained that it was as impossible to bore an inch hole with a half-inch auger as it was to drive the business then being offered through the facilities which the railroads had.[1] Hill contended that conditions were growing worse; that there should be an addition to the railway mileage that then existed of from 25 to 33 per cent; that in addition, there would need to be much spent for new equipment, reduction of grades, double tracking, and terminal facilities. He believed it would be necessary to spend at least $5,500,000,000 yearly for a period of five years to make the railroads equal to the task then before them.[2] That the railroads had more business than they could handle in 1906 is clear from the testimony of many railway officers in the investigation of the Interstate Commerce Commission at that time. The general manager of the Northern Pacific Railroad testified that in some instances they did not place cars in competitive territory, in the hope that the other railroads would take the business.[3] The third vice-president of the Rock Island Railroad stated that his road followed the practice of trying to get customers to ship over other roads.[4] The general superintendent of freight transportation of the Pennsylvania lines west of Pittsburgh stated that their agents were instructed to try to persuade shippers to ship by other lines.[5]

In the eleven-year period 1906–16 inclusive, the ton mileage increased nearly 60 per cent, while mileage

[1] Minneapolis Hearings, loc. cit., Howard Elliott made similar statements. Ibid., pp. 281–291. See also St. Louis Hearings, pp. 93–94; Kansas City Hearings, p. 215.

[2] Minneapolis Hearings, p. 296; St. Louis Hearings, p. 15; Kansas City Hearings, p. 185. See statement of Manager of Transportation Dept., Chicago Board of Trade, Railway Age, vol. 44, pp. 614–619.

[3] Minneapolis Hearings, p. 221.

[4] Chicago Hearings, p. 317.

[5] St. Louis Hearings, p. 91.

increased about 16 per cent.[1] In other words, it appears that the transportation plant as a whole has not kept pace with the growth of traffic. In the annual report of the Interstate Commerce Commission for 1916, it is claimed that whenever business generally is good and times are prosperous, there is widespread difficulty and complaint due to inability to secure satisfactory transportation services from the railroads. The Commission points out that this difficulty recurs during the fall and winter months of practically every year with regard to transportation of coal, and usually also in connection with the movement of grain when the crops are good.[2]

Inefficient and unsatisfactory railway service, however, may result from the improper use of facilities as well as from their insufficient supply, and it is this phase of the problem with which this article is concerned. Adequacy of the railway plant as a whole would not necessarily guarantee satisfactory service to different classes of shippers or to the different sections of the United States. Evidence has already been given (Maps I and II) which indicates that some sections of the country suffer very much more than others from a shortage of equipment. A fundamental reason for this is that this large country is roughly divided into areas which produce raw materials, and into sections which engage in various lines of manufacture. Areas producing bulky raw materials must have many cars to serve their needs for outbound loading; furthermore, the movement of cars under load into such areas is light, and therefore such areas of "one-way" shippers find it difficult to secure all the equipment they need. To this perfectly natural force, which tends to bring about a very unequal

[1] Annual Report I. C. C., 1916; table facing p. 74; Statistics of Railways in United States, 1906, p. 16; and Abstract Statistics of Steam Railways in United States (I. C. C. R.), 1916, pp. 2, 6.

[2] Annual Report I. C. C., 1916, pp. 67–68.

distribution of railway equipment and great inequalities in railway service, must be added several others. The railroads, the shippers, and regulating bodies are all responsible to some extent for this condition of affairs.

The general public has generally held the carriers responsible for inadequate transportation facilities. There is a widespread belief that railroads are accountable for the trouble because of a shortage of cars. It is a fact that certain railroads do not have adequate rolling stock.[1] Indeed some small railroads have no cars whatever, and they rely wholly upon their connections for equipment.[2] In one state in 1907, railroads having 10 per cent of the total mileage relied entirely upon other lines for their equipment.[3] In the late eighties, railroads sometimes made contracts to "furnish cars" used in traffic with other roads, the assumption being that the roads making the contract were to furnish their own cars; if they did not, they were to assume the mileage on any foreign cars used in this joint business.[4] Evidence indicates that railroads assumed, but in many instances did not pay, the mileage to the road that owned the cars.[5] In view of conditions in 1906 and 1907, it was natural that the American Railway Association, at its meeting in October, 1907, should have adopted a resolution that it was "a basic principle that ultimately every road should furnish sufficient equipment to take care of its local traffic moving within the confines of its own road, and also its proportion of all equipment required for through traffic."[6] The Interstate Commerce Commission through Commissioner Cooley early laid down the

[1] 1 I. C. C. R. 775; 12 I. C. C. R. 573; St. Louis Hearings, pp. 3, 4, 119, 120; Kansas City Hearings, pp. 184, 185.

[2] Proceedings National Association Railway Commissioners, 1913, pp. 243–244.

[3] 12 I. C. C. R. 574.

[4] Proceedings American Railway Association, vol. i, p. 183.

[5] Ibid., loc. cit.

[6] Ibid., vol. v, p. 37.

principle that it was the duty of the carrier to provide itself with rolling stock for the normal business which it proposed to carry.[1] It was contended in the Chicago Hearings [2] in 1906, that the Interstate Commerce Commission should be given power to compel a railroad to buy its proper share of equipment. One line ought not find it necessary to buy so much equipment that it would not have room on its own rails to store its own cars during periods of slack business.[3] But such inequalities between different systems would not necessarily indicate the insufficiency of the total supply.

Examination of Table I shows that the supply of rolling stock in this country has been ample except in certain seasons of certain years. From 1907 to 1916 it appears that there were five years in which there was no net shortage at all, and two other years in which the shortage was only nominal. In fact, only three years in this period show any marked lack of cars. According to facts presented by the American Railway Association, there were 423,183,191 idle car days on the railroads of the United States from 1906 to 1916; and counting the average earnings of a car as $2.50 a day, this would mean $1,057,957,977.50 as the loss to the railroads on account of dull times and hence idle cars during the ten years. There were 31,543,316 car shortage days in the ten years and, on the same basis, the loss to the railroads because they could not furnish cars was $78,858,290.[4] If these figures are to be relied upon, it is clear that it is not to the interest of the railways as a whole to increase materially the supply of cars. It is a fact, how-

[1] 1 I. C. C. R. 722. [2] P. 360.

[3] Commissioner Hall testified before the House Committee on Interstate Commerce in 1916 that instances had come to the attention of the Interstate Commerce Commission of roads that did not have room on their own rails for their own cars during periods of slack business, and were obliged to store them on the ground. Esch Hearings, p. 15.

[4] The American Railway Association Bulletin No. 6, February 6, 1917.

ever, that there were actually fewer cars in service in the United States in 1915 than in 1914, and fewer in 1916 than in 1915;[1] and this lack of equipment combined with an enormous war traffic has of course caused much embarrassment. In 1914 and 1915, the railroads did not buy the usual number of cars. In 1916, they were unable to secure them. Much railway equipment has been made in the United States for our allies, and some car manufacturers ceased to engage in the prosaic business of manufacturing railway equipment because of better opportunities in other lines.

Without attempting to minimize the importance of a shortage of rolling stock, which at times causes much embarrassment, it must be pointed out that the problem is one which involves much more than a mere deficiency of equipment. As Commissioner Lane indicated more than ten years ago, the problem of car shortage is one which is connected with every factor of railroading — the construction, operation, maintenance and financing. He rightly maintained that the problem of transportation is so closely interwoven with the fabric of our commercial organization that one may not lightly say what are the multitudinous considerations which necessarily enter into so simple a question as the reason why a car is not at once forthcoming when ordered. As he pointed out, the inability of the shipper to secure a car may be but a symptom of a deep seated and organic trouble.[2] Examination of Table I indicates that much attention which has been given to the subject of car supply might better have been given to the conditions which affect car operation.[3] In fact, at times when there has been

[1] The numbers were as follows: 1914, 2,325,647; 1915, 2,318,305; 1916, 2,298,263; Annual Report I. C. C., 1916, table facing p. 74; I. C. C. Abstract of Statistics of Steam Railways in the United States, 1916, p. 3.

[2] 12 I. C. C. R. 574–575.

[3] See statement of J. J. Hill, Minneapolis Hearings, p. 298; Proceedings National Association Railway Commissioners, 1912, pp. 246–247.

most embarrassment because of the insufficiency of transportation facilities, it has resulted more from congestion in terminals and on side tracks than from car shortage.[1] At such times more cars would have made conditions worse instead of better, for additional equipment would merely have added to the congestion.

The problem of car operation has been increasing in significance as our commerce has become more interstate in character, and as the relation of the railways to each other in the handling of traffic has become more complex. When our railways were first built, the question of exchange and interchange of railway equipment was not an important one. The lines were then short and disconnected. They served a local community only, and as a rule equipment did not go beyond the termini of the home road. Indeed, railroads were built on different gauge in order to keep cars on the home track, and some states framed charters designed to prevent through routes so as to keep the business within their borders.[2] In view of these primitive conceptions and conditions, it is not surprising to learn that an early decision of the Interstate Commerce Commission upheld a railroad which refused to furnish cars for points beyond its own line. This decision was based upon the theory that local traffic enjoyed rights superior to through traffic. The Commission observed in this case that " if this company (Pittsburgh and Lake Erie Railroad) should send its cars . . . to Buffalo, . . . this

[1] See statement of Commissioner Clark before the Chicago Traffic Club, Railway Age, November 1, 1907, pp. 614–616; statement of J. J. Hill, Minneapolis Hearings, p. 295; see also ibid., pp. 311, 318; Proceedings National Association Railway Commissioners, 1912, pp. 246–247; 12 I. C. C. R. 564; Annual Report I. C. C., 1916, p. 68; address of Howard Elliott, Proceedings Railway Development Association, November, 1915, pp. 25–32; St. Louis Hearings, p. 15; Kansas City Hearings, p. 216. Space does not permit of a discussion of the vital problems of railway service in terminals, and of the coördination of rail and water carriers. These subjects must be left for future consideration.

[2] McPherson, Railroad Freight Rates, pp. 161–162.

would have stripped this railroad of its equipment, leaving the other business along its line to go to ruin. . . ." The Commission contended further that the railroad's "first and most paramount legal duty to the shipping public was to make its entire freight equipment do its utmost in serving the shippers along its own line. . . ." [1] With the growth of the country, it has been necessary to develop standard gauge [2] and to consider railroad equipment something like a negotiable instrument. It is now imperative that cars be sent freely from one system to another, hence the vital importance of equitable car service rules and their honest observance.

When carriers began to interchange equipment in through traffic, they paid for it on a mileage basis. This led to great abuses. The method of computing mileage often made it impossible for a railroad to get any pay for the use of its cars in the local service of another railroad, and such local usage was widely practiced.[3] There was much dishonesty in making reports, and foreign equipment was much used for storage purposes under the mileage plan. Finally in 1902, this basis gave way to the per diem method of payment.[4] As soon as this system went into effect, the committee on car service of the American Railway Association was able to report improvement in the return of cars to their owners, which resulted in an increase in the available car supply.[5] The

[1] Riddle, Dean & Co. v. Pittsburgh & Lake Erie R. R. Co.; 1 I. C. C. R. 688 (693).

[2] Altho the standardisation of the gauge of American railroads was carried out principally between 1860 and 1870, the standing resolution of the American Railway Association that the standard gauge should be 4 ft. 8½ in. was not adopted until April 7, 1897. Proceedings, vol. vii, p. 1220.

[3] Ibid., vol. i, p. 183.

[4] Ibid., loc. cit.; for summary of objections against the mileage basis, see ibid., vol. ii, p. 748; history of per diem from its proposal, April 25, 1900, to its final adoption is given in ibid., vol. iii, pp. 160–168, 193–215, 251–263, 279, 280, 292, 410–415, 434, 435, 552–595, 1019–1024.

[5] Ibid., vol. iii, p. 1039.

per diem was twenty cents per day in the beginning, but it has been modified from time to time in an attempt to make it to the interest of carriers to return equipment promptly. But even increased per diem charges do not return cars when there is a great demand for them and when it is profitable to use foreign cars in local service.

Statistics of car location (Maps I and II) show that cars accumulate in certain sections of the country in certain months of the year. As has been suggested, this is the result in part of traffic taking its normal channels, but it is also due to the fact that car service rules are honored more in the breach than in the observance when there is much demand for equipment. The railroads frankly confessed this fact before Commissioner McChord in the Hearing at Louisville, Kentucky, in November, 1916.[1] The record in this hearing shows that the Car Service Commission of the American Railway Association found over 40,000 violations of car service rules in the month of June, 1916, and that the evidence was so overwhelming that further inspection was abandoned.[2] Such a practice on the part of the railroads places a great burden on those sections of the country which, as has been indicated, produce mainly raw materials, the sections which normally load much freight out but receive little inbound freight. Whenever there is a heavy demand for cars, such sections suffer much from car shortage, for they cannot provide themselves with empties like sections that are receiving a constant stream of cars under load. It is evident that the "one-way" shippers are dependent upon a fair observance of car service rules for a supply of equipment.

The effect upon the railways in such regions is equally apparent. Railway systems in the West suffer severely

[1] Car Supply Investigation, House Doc. 2116, 64th Congress, 2nd Session, p. 8.

[2] See testimony of Commissioner Hall, Esch Hearings, pp. 36–37; also Traffic World, November 11, 1916, p. 956.

from lack of equipment, regardless of their original supply. Their cars, which are loaded and destined to the Atlantic ports, are often used for local business there or are loaded and sent back to some point, say in Trunk Line or Central Freight Association territory, and unloaded only to be reloaded and sent again to the Atlantic coast. In 1906, James J. Hill sent a representative of the Great Northern Railroad to the East to discover where Great Northern equipment was being detained. The representative found that their equipment was being used to haul ice from Maine to Boston and that these cars had "been in that service for months and months." [1] Thus, through the disregard of car service rules, the cars of railway systems west of the Mississippi River shuttle back and forth throughout the eastern portion of the United States. Coal mines as well as producing areas belong to the unfortunate group of one-way shippers. Consequently railroads which serve coal mines often find it difficult to secure the return of coal cars that go beyond their own lines. A typical case of this sort came before the Interstate Commerce Commission in 1910. The superintendent of transportation of the Illinois Central Railroad had attempted to secure an agreement from a number of connecting roads that they would observe car service rules and return coal equipment promptly. The reply of the Missouri Pacific is typical.

[1] Testimony of Hill, before the Interstate Commerce Commission, Minneapolis Hearings, p. 300. Little wonder that Hill should say: "The car thief is the worst kind of a thief. Thieves are all bad but I think the car thief is the worst." Ibid., loc. cit. See also discussion upon the adoption of the per diem method of payment before the American Railway Association in Proceedings, American Railway Association, vol. iii. p. 565.

A little road in Iowa about 100 miles long said to have the largest amount of cars per mile of any railroad in the United States has had much trouble in keeping equipment adequate to their needs because they ship out clay and gypsum products that go to distant points, and the number of cars that come over their system under load does not correspond with the number they ship out, hence in a time like the last two years they have much trouble from car shortage. (See a statement of E. D. Chassel of the Railroad Commission of the state of Iowa, Hearings before House Committee on Interstate and Foreign Commerce, 64th Congress, 2nd Session, on H. R. 19546, etc., p. 58.)

That railroad indicated that it would be glad to observe the car service rules, unless they were disregarded by other lines. In that event it would be compelled to confiscate whatever cars it found upon its lines. The Illinois Central finally issued an order to the effect that none of its cars could be loaded with coal destined for points beyond its own lines. Whereupon the Missouri and Illinois Coal Company, which was thereby prevented from marketing coal on its contracts in St. Louis, appealed to the Interstate Commerce Commission for relief. Reversing the earlier decision [1] it was held that the action of the Illinois Central was illegal; but the Commission made no order in the case, indicating that it was the first duty of the carriers to work out equitable car service rules among themselves.[2] Clearly the refusal of railroads to observe their car service rules has meant inequity in car distribution not only among different shippers and different sections of the country but also among the railroads themselves. Such practice on the part of the carriers gives little incentive to any individual line to increase its car supply. Railways are, however, not altogether responsible through non-observance of car service rules for the fact that railway equipment becomes congested in some sections and lacking in others. Both shippers and regulating bodies share this responsibility.

The responsibility of shippers for the inability of carriers to render adequate service is greater than has commonly been recognized. Among the practices of shippers which contribute to the inadequacy of transportation facilities may be mentioned the detention of equipment longer than is necessary to unload it, the use of cars for storage purposes, the abuse of the reconsignment privilege and finally by continuing trade customs

[1] See p. 150, note 1, supra. [2] 22 I. C. C. R. 39 (41).

that should have changed *pari passu* with enlarged capacity of railway equipment. These practices have meant an inefficient use of equipment. Bad habits of American shippers have been developed to a great extent by competition between carriers. For some years American railroads were built out into territory where nobody lived, and from that point on out to where nobody cared to go.[1] Because of the excess of transportation facilities it was natural that competition between carriers should have brought about very liberal use of railway equipment by shippers. Some railroads had ample warehouse or storage room which they gave free to shippers in order to get their business. Others that did not have storage room offered their cars or as was often the case the cars of other railroads.[2] As late as 1887 when the board of directors of the New York and New England Railroad reluctantly permitted the vice-president and general manager of that road to levy a demurrage charge on shippers for detention of equipment, the competing lines with the exception of the Boston and Albany began soliciting New England patrons with promises of unlimited car storage.[3] Altho earlier attempts [4] than that of the New York and New England Railroad were made to levy a demurrage charge for detention of equipment by shippers they do not appear to have been taken seriously,[5] especially so far as it affected big shippers [6] or competitive points.[7] In fact any one railroad found it very difficult to insist upon payment of demurrage without a loss of business,

[1] See an article by Charles Francis Adams, North American Review, April, 1875.

[2] Chicago Hearings, p. 337; see St. Louis Hearings, p. 140; Proceedings National Association Railway Commissioners, 1909, p. 214, and 1914, pp. 41–42.

[3] Railway Age, February 8, 1907, p. 171.

[4] Ibid., loc. cit.; also Railroad Age Gazette, October 30, 1908, pp. 1234–1236.

[5] Proceedings National Association Railway Commissioners, 1909, pp. 236–237, 240.

[6] Ibid., p. 221.

[7] 18 I. C. C. R. 38; 25 I. C. C. R. 216. Proceedings American Railway Association, vol. i, p. 173.

and car service associations were finally formed to collect[1] for all railroads. Even then shippers resisted payment of these charges and carried their cases to the Interstate Commerce Commission but without success.[2]

The extent to which shippers use railway equipment for storage purposes is difficult to measure. Reporting upon evidence presented in the investigation of the Interstate Commerce Commission in 1906, Commissioner Harlan pointed out that both railroad men and shippers admitted that cars were constantly used by shippers as warehouses, and that the time allowed to them for loading and unloading was in excess of real necessity.[3] Naturally through liberal treatment of shippers on the part of railways in the use of railway equipment, habits were developed of relying upon the railway to furnish much of the "business plant." The very rapid development of our commercial centers has contributed not a little to the insistent demand on the part of the shipping public for a continuation of early privileges in the use of the railway equipment in connection with their business. Inasmuch as land has ad-

[1] List of demurrage bureaus, see Bull. 191, U. S. Dept. of Agriculture, March, 1915, p. 24.

[2] 11 I. C. C. R. 166; see also 18 I. C. C. R. 234.

[3] 12 I. C. C. R. 579. Commissioner Lane said that the contention that car shortage had been caused by the use of cars as warehouses was without support so far as the testimony given at Minneapolis and Chicago indicated. He maintained that the demurrage accounts of the railroads showed that to a very limited extent did "consignees avail themselves of the right to hold cars as warehouses and pay demurrage thereon." 12 I. C. C. R. 571. While this might be true as applies to agricultural areas to apply it generally would appear to overlook the fact that even in more recent years demurrage accounts might not be a true measure of the extent to which shippers were holding cars. J. A. Shinn writing in the Railway Age (February 8, 1907, pp. 171–172) maintained that in 1893 it was notorious that many big firms owed tens of thousands of dollars which was not paid and which no attempt was made to collect. Even as late as 1909, the Committee on Car Service and Demurrage of the National Association of Railway Commissioners reported that the collection of demurrage from large industries was still somewhat of an anomaly; that in some sections of the country the railroads were carrying on their books uncollected demurrage of hundreds of thousands of dollars; that the failure to enforce demurrage rules had been "particularly notorious." Proceedings National Association Railway Commissioners, 1909, pp. 221, 240. If these statements are to be relied upon it is fair to assume that an important portion of demurrage was never even placed upon the books. See also American Railway Association (Bulletin) February 6 and May 9, 1917.

vanced in value very rapidly in our cities, it has been cheaper to rely upon the carriers for adequate storage and track space than to provide it otherwise.[1] The charge for the use of railway equipment has not advanced in the same ratio that the value of real estate has risen; indeed the charge for detention of railway equipment had remained almost stationary until recently advanced by the Director General of Railroads. Even those business concerns, which a generation ago had sufficient storage or track space, have found it economical to use this space for enlarging their capacity, leaving the burden of their enlarged capacity upon the carriers.[2] This applies to the shipping in of large orders of raw materials bought under favorable market conditions as well as to the daily output of a concern. In a case in the former class which came before the Interstate Commerce Commission as late as 1912, the shipper resisted the payment of demurrage, but the Interstate Commerce Commission very properly held that the demurrage should be paid.[3] When the railroads applied to the Interstate Commerce Commission a little over a year ago for permission to reduce free time on domestic freight held in New Jersey for final delivery to New York, Brooklyn and elsewhere, and for permission to increase the charge for storage for both export and domestic delivery at New York harbor points, neither measure was for the purpose of increasing revenue but to relieve freight congestion.[4]

In the case of some concerns which have adequate storage, their facilities for unloading may be so primitive as to occasion much delay to railway equipment.

[1] See 14 I. C. C. R. 170; 16 I. C. C. R. 116; Proceedings National Association Railway Commissioners, 1913, pp. 357–368.

[2] See Chicago Hearings, p. 358.

[3] 25 I. C. C. R. 399.

[4] Newlands Hearings, p. 900.

The evidence reflected in Map II appears to reveal that the economies sought by the railroads in building self-dumping coal equipment are to a large degree offset by the fact that many consignees do not have proper facilities for unloading such cars. Investigation was made by a railroad company that found its coal cars were being unduly detained; and it was told by dealers in Kansas, Oklahoma and other states that it was cheaper for them to hold the cars and pay five or six days demurrage than it was to unload the coal in bins and reload it again in wagons.[1]

It is clear that railway competition, together with early liberal precedents, makes it difficult for railways to put wholesome pressure upon shippers to provide their own storage.[2] For more than twenty-five years the Lehigh Valley Railroad Company provided in its tariffs that cars containing anthracite coal forwarded to Perth Amboy for transshipment by boat and held at that port would not be subject to demurrage; it was further provided that free storage in bins would be given for a period of two years to such shippers. But the Interstate Commerce Commission upheld the Lehigh Valley in 1915 in its refusal to continue to furnish free storage bins, or to permit cars to be detained without demurrage charges.[3] The Interstate Commerce Commission has held that the carrier has a right to unload car load freight at the end of free time in order to secure its equipment,[4] but this in practice is often very difficult for the carrier to do in congested terminals, where the need is greatest for releasing equipment.

Abuse of the reconsignment privilege has become important in recent years through a substantial increase

[1] Kansas City Hearings, p. 259.
[2] 41 I. C. C. R. 506; 43 I. C. C. R. 472.
[3] 36 I. C. C. R. 140; see also 37 I. C. C. R. 441.
[4] 18 I. C. C. R. 234.

in the number of commission men and brokers,[1] who have relied almost entirely for their "business plant" upon the railway. But such a practice is by no means a new one. The manager of the Railway Clearing House Association of Boston observed in 1888 as follows: "When one sees with what coolness a man hires desk room in an office and starts out in the grain, lumber or coal business without a storehouse of any kind, no lumber or coal sheds or a square foot of yard room anywhere, trusting entirely to the railway companies to substitute their cars for storehouses and sheds, *charging him nothing*, one is lost in amazement."[2]

Reconsignment may be necessary in some cases because of the uncertain or slow movement of trains.[3] This is especially true of fruits, vegetables, or other perishable commodities. Shippers may resort to reconsignment to keep their list of customers from their competitors,[4] or to escape demurrage charges.[5] Finally, it is considered necessary because of certain trade conditions, which in many instances have been brought about through the use and abuse of reconsignment itself. In investigations made in 1917 at New York, in regard to food speculation, it was learned that car loads of perishable foodstuffs were sometimes sold a dozen times and

[1] A car service manager testified before the Interstate Commerce Commission in 1906 that middlemen had increased from two to five times but that they had not increased their facilities. (St. Louis Hearings, p. 141.) Both the mushroom expansion of many business concerns as a result of the war, and also the indefiniteness of the future, have caused many establishments to depend entirely upon the railway plant for storage facilities. Freight equipment has been used as coal bins from which the daily supply has been taken. The statement was made before the Esch Committee that owing to lack of storage facilities Detroit has but a three days' coal supply on hand. (Esch Hearings, p. 27.) Much evidence along this line was given in hearings before the Public Utilities Commission of Ohio in February, 1917.

[2] Proceedings American Railway Association, vol. i, p. 184. See also 12 I. C. C. R. 571. Proceedings National Association Railway Commissioners, 1913, pp. 362-363; Railway Age, December 28, 1906, p. 802.

[3] Kansas City Hearings, p. 268. Chicago Hearings, p. 433.

[4] Kansas City Hearings, p. 256.

[5] See Proceedings National Association Railway Commissioners, 1914, p. 42.

nearly every time they were sold a reconsignment was made.[1] The handling of grain and other commodities through a third party or commission house has created laws providing for inspection either by state or regularly authorized boards of trade, and the tariff governing demurrage has conceded the right and allowed free time for inspection. Instances have been cited of grain which moved through fifteen different markets, being subject to official inspection at each of the markets before it was ultimately unloaded.[2] It was contended before the National Association of Railway Commissioners in 1913, that 90 per cent of the grain tonnage was handled through so-called commission firms that had very little if any storage room of their own.[3]

Like other privileges enjoyed by shippers, reconsignment had its origin in the days of fierce railway competition when traffic was not so plentiful as it has been in recent years.[4] Furthermore, railway competition has extended the time for reconsignment in many cases beyond what is necessary.[5] Shippers unfortunately do not fully appreciate that with a change in conditions insistence upon what they have come to consider as a right is after all the abuse of a privilege which results in injury to themselves. That the Interstate Commerce Commission has always looked upon reconsignment as a

[1] A car load of potatoes was sold to a New York jobber and by him sold to a Chicago jobber, and the car reconsigned to Chicago: the Chicago jobber sold it to a Cincinnati dealer and the car was reconsigned to Cincinnati: the Cincinnati dealer sold it to a Cleveland dealer and the car was reconsigned to Cleveland, and so the thing went on through half a dozen more transactions covering a period of more than thirty days, meantime the car itself was standing in the yards in one of the upstate cities of New York. Railway Age, August 31, 1917, p. 370.

[2] National Association Railway Commissioners, 1913, pp. 361–362; see also Esch Hearings, p. 11; St. Louis Hearings, pp. 114, 123. It has been contended that much terminal delay could be eliminated by providing as far as possible for inspection of grain before shipment. Kansas City Hearings, p. 265.

[3] Proceedings National Association Railway Commissioners, 1913, p. 361.

[4] Railway Age, October 5, 1906, p. 415.

[5] Proceedings National Association Railway Commissioners, 1909, pp. 220–221; 12 I. C. C. R. 571.

privilege, not as a right, is clear,[1] and this body has not been slow to condemn the abuse of this privilege. The Commission has maintained that it is worse in its effects than rebates.[2] The president of an important belt line railway testified before the Interstate Commerce Commission that reconsignment is the largest factor in terminal delays.[3] Testimony given in the Louisville Hearings in November, 1916, was to the effect that car shortage on the Illinois Central Railroad would have been reduced one-half if cars held for reconsignment had been released.[4] Beyond doubt a considerable amount of traffic which blocks sidings and congests terminals should not require the reconsignment privilege; it is manifestly unfair that a consignee who is able to receive his freight promptly should be prevented from doing so because traffic held for reconsignment congests yards, sidings, and terminals. Just as the disregard of car service rules among carriers gives little incentive to any one road to provide ample facilities, so does disregard of car service rules between railroads and shippers leave little incentive to a shipper to provide adequate facilities for handling his freight; it even puts a premium on the "shipping-to-order" practice.

Trade customs relative to commercial units have meant an inefficient use of railway equipment. Orders have been given for the same amounts that were customary when the capacity of railway equipment was much less than it is now. Within a ten-year period the number of freight cars increased 37 per cent while the load carrying capacity increased 60 per cent. Statistics of the Interstate Commerce Commission indicate that this

[1] 16 I. C. C. R. 387.

[2] Railway Age, February 8, 1907, p. 171.

[3] Chicago Hearings, pp. 410–411; St. Louis Hearings, pp. 123–125; Traffic World, November 11, 1916, pp. 962–966.

[4] Ibid., November 18, 1916, p. 1006.

increased capacity has not been utilized.[1] In June, 1917, the Railroads' War Board pointed out that the average car load was but 15.5 tons or only 42 per cent of the average capacity of cars.[2] The excellent records of maximum loading since that time show what might be possible even without the spur of patriotism.[3] But it would appear that as long as shippers continue the practices which have just been described it will be impossible to determine with any degree of certainty the need for transportation facilities.

Those who represent the interests of the carriers have been as ready to contend that government regulation is responsible for inadequate transportation facilities as the public has been to lay the responsibility upon the railroads. It has been claimed that the return to the railways has not been sufficient to enable them to furnish the facilities which are needed.[4] The Interstate Commerce Commission and the state commissions have hesitated to grant increases in railway rates probably because they have feared that an increase in railway income would induce an increase in railway capitalization; and that increased capitalization in turn would be presented as justification for another increase in rates. The vicious circle ought to be broken by increased knowledge of the value of the railway plant combined with supervision over the issue of railway securities. The public cannot afford to pay less for transportation than it costs to produce it. But this discussion is concerned with the efficient and maximum use of facilities, once they are provided. Indeed such use even determines the supply of facilities which will be needed.

[1] Table facing p. 74. Ann. Rept. I. C. C., 1916.

[2] Railroads' War Board, Official Public Bulletin No. 7, June 26, 1917.

[3] Much valuable information in American Railway Association Bulletins.

[4] This has been emphasized in the program of the railroads as presented in the Newlands Hearings. For statements of A. P. Thom, see pp. 213, 214, 218; Judge Lovett, pp. 682–684; Julius Kruttschnitt, pp. 892, 866–968, 972–973.

federal regulation has doubtless interfered with the proper use of railway facilities. The prohibition of pooling by the act to regulate commerce and the application to the railroads of the theory embodied in the Sherman law has made it difficult to use the railway plant in an economical manner. The Panama Canal Act has not been conducive to economy and efficiency in the operation of rail and water systems. The right of the shipper to route his freight as he has wished has meant much economic waste in our transportation. But federal legislation, or as will appear presently the lack of it, is not the only hindrance to efficient and sufficient railway service. State laws also, which have regulated railway operation and service, have prevented an equitable and economical use of railway facilities.

Some states have attempted through legislation to give shippers within their borders an advantage over their competitors in other states. This can be done by low intrastate rates, but it may make such inroads on railway revenue that a carrier will have insufficient funds to provide adequate facilities. Judge Lovett testified before the Newlands Committee that the increase in rates given by the Interstate Commerce Commission at the beginning of the European War was practically offset in the state of Pennsylvania by reduction of the rates on coal to tidewater points.[1] Carriers may be prevented from financing their properties to advantage by state regulation of security issues.[2] Complaint was made before the Newlands Committee that the New York Central, which has only a total right of way in Illinois of about 140 miles, altho it operates 6034 miles of first track, was taxed $600,000 by that state as a condition precedent to its approval of an intended financ-

[1] Newlands Hearings, pp. 716–717.

[2] Ibid., pp. 76, 98, 109, 894, 927–928.

ing; also that Arizona in return for approval of an issue of securities asked that litigation concerning passenger fares be dropped and that a new station be built at Phoenix.[1] The Hadley Commission, in commenting upon state regulation of security issues, said they believed the time was near when the difficulties of the present system of dual control, and the conflict of state laws would become so manifest that further legislation would be imperative.[2]

State industries may be favored by legislation regulating directly the service which carriers must furnish to shippers. A state that fixes low car load minima may benefit some of its industries but it will absorb more than its fair share of railway equipment. Likewise if one state gives much free time to shippers this means that equipment is detained and shippers in other states are deprived of its use. C. F. Staples, member of the Minnesota Railroad Commission, told the National Association of Railway Commissioners in 1909 that he could readily understand why no railroad in Minnesota would permit one of its cars loaded with flour to go down into the New England states, for there they permitted four days free time for unloading, which of course meant much delay to Minnesota farmers who were clamoring for cars.[3] It is evident, too, that anything which increases detention of equipment at the same time increases the aggregate supply which is necessary to move a given tonnage. The unsatisfactory character of regulation of demurrage by the separate states brought about the adoption of a uniform demurrage code by the National Association of Railway Commissioners in 1909

[1] Newlands Hearings, p. 928, see also pp. 76–84.

[2] Rept. of the Railroad Securities Commission, House Doc. No. 256, 62nd Congress, 2nd Session, p. 8.

[3] Proceedings National Association Railway Commissioners, 1909, p. 277. See the statement of a member of the Minnesota Railroad Commission before a Senate Committee in 1917. Hearings, S. 636, May 3, 1917, p. 19.

and the Interstate Commerce Commission approved this code the same year. The year following it was approved by the American Railway Association. According to a bulletin of the United States Department of Agriculture published in March, 1915, there were at that time twenty-four states that had adopted the uniform code for intrastate traffic, and in the other twenty-four altho there was a tendency to conform more nearly to the provisions of the uniform code, the exceptions thereto and the number of special provisions in the state codes were important.[1]

Following the acute conditions in 1906 and 1907, about twenty states passed so-called reciprocal demurrage laws. Similar legislation was introduced into Congress,[2] and the Interstate Commerce Commission was asked to make a ruling governing reciprocal demurrage; but it held that it had no authority to make such a rule.[3] Such legislation requires railroads to supply shippers with cars on penalty of so much per day for each car not furnished. Some of the state laws were drawn in such a way that they were declared illegal, and fortunately the decisions of the courts brought little enforcement of the legislation in many other states, and in some the legislation has been repealed. Aside from the weakness of such a law, were it applied generally, to have it in some states and not in others, means interference with interstate commerce and an unequal distribution of equipment among states. It puts a premium upon the retention of a carriers' cars upon its own lines and hence under its own control, which in turn interferes with free exchange and interchange of equipment. In view of this fact it might not be worth while to fur-

[1] Bulletin No. 191, U. S. Dept. of Agriculture.

[2] For a copy of a bill (S. 3644) and hearings on same, see Sen. Doc. No. 311, 60th Congress, 1st Session, pp. 1–134, and appendix of five tables.

[3] 12 I. C. C. R. 61.

nish a shipper with cars that could not be sent beyond the termini of the originating road. The application of such a law means, therefore, that shippers would find their markets curtailed. In other words the application of such a law within the borders of a state means that shippers within that state, engaged in interstate commerce, would have difficulty in securing a fair share of railway equipment.[1]

Our early railway legislation prohibited discrimination on the part of the railways. It is equally important to eliminate discrimination which results from state regulation. Regulation by some states makes it difficult, in some cases impossible, for carriers to furnish equitable and adequate service. In the middle 70's when the Windom report was made to Congress there was a demand for low freight rates. That was natural in view of the economic conditions which obtained at that time. About ten years later the Cullom report brought discrimination in freight rates to the fore. And now within the last decade the growth of traffic beyond the capacity of the railway plant and the lack of proper control of railway service have brought the shipping public to a realization of the fact that adequate and non-discriminatory service is as important as low or non-discriminatory rates. This is reflected in the recent Esch and Pomerene Reports. Shippers appeared before the Interstate Commerce Commission in the Fifteen per cent rate case and expressed their willingness to see an advance in freight rates, in the hope that the railways would be able to render better service. From the foregoing analysis it would appear that something more is required than an increase in railway facilities. What is

[1] Aside from the extent to which such legislation interferes with interstate commerce and the free exchange of railway equipment it is easy to see how it would lead to rebating if the one receives the penalty who is supposed to be damaged by the fact that equipment is not furnished.

needed is a thorogoing control of railway service. This is necessary whether the railroads are restored to private operation, continued under some plan of government operation, or taken over by the government through government ownership.

If the railroads are to be restored to private operation our government regulation ought not compel the carriers to compete. Most students of transportation are agreed that there would be a distinct advantage in the repeal of our legislation which prevents pooling and combination among carriers, provided there be adequate supervision and control of such combinations. Those who argue for the railroads have contended that the repeal of such legislation would have made government operation of railroads unnecessary; that the breakdown was one of government regulation rather than of railroad administration.[1] If this be granted, it implies more than railroads will desire to accept. The character of railway service from about 1900 to the present time indicates that something more than mere *permission* to carriers to pool and form combinations is necessary. The repeal of the federal legislation referred to would not be sufficient. A railroad like any other business interest will combine with others when it is to its advantage to do so, but when a carrier occupies a strategic position in the use of terminal or other facilities, it is not probable that it will offer to share this monopoly advantage with other carriers. It may be to the interest of the public, therefore, not only to *permit* but to *compel* certain combinations among carriers in rendering service.[2] There is as much logic in compelling one carrier to permit the use of its

[1] See editorials in Railway Age; also Regulation of Railways by S. O. Dunn (Appleton, 1918) reviewed by the writer in Journal of Political Economy, October, 1918.

[2] See a statement by Senator Cummins, Hearings, S. 636, May 3, 1917, p. 26; see also article by Professor Van Metre, New Republic, February 2, 1918, pp. 17–20.

facilities by another carrier as there is in compelling one utility to permit the use of its poles, conduits, or other facilities by another utility. In both cases the public receives consideration as an important third party to the contract. The theory in the decision of the Supreme Court in the St. Louis terminal case (1912) ought to be more generally applied.[1]

In the regulation of railway service the Esch-Pomerene law, which became effective May 29, 1917, is but a beginning in the right direction. This legislation gives the Interstate Commerce Commission control over " car service " which term is defined by the law to include " the movement, distribution, exchange, interchange, and return " of cars used in the transportation of property by any carrier subject to the provisions of this act.[2] It is not easy to appreciate why such a law was not passed some years earlier.[3] System control of what must be inter-system equipment was too long tolerated. When the American Railway Association worked out car service rules in 1900 much emphasis was placed upon ownership as the proper criterion for the return of equipment.[4] The same theory is found in the order of

[1] 224 U. S. 383.

[2] Statutes of the U. S., 65th Congress, 1st Session, 1917, chap. 23, pp. 101–102.

[3] See a review by the writer of the Special Report of the Interstate Commerce Commission for 1917 in American Economic Review, March, 1918.

[4] The rules were presented to the Association by its Car Service Committee in April with the suggestion that the expression of the Association or of members thereof be given and that the rules with suggestions be referred back to the committee for reconstruction and recommendation to the Association in its October meeting. Rule 3 as originally presented by the committee had provided that a car should not be delivered to a second railroad without consent of owner. The Association voted that " without consent of owner " be eliminated. The committee, however, did not take this as binding upon them, and reported the rule in October " with consent of owner " inserted. Discussion at some length followed concerning the recognition which should be given to ownership of a car and the extent to which the needs of traffic and the reduction of empty car mileage ought at times to control in the exchange and interchange of equipment. By a very close vote the Association decided that the interests of the car owner should be considered first. (See Proceedings, vol. iii, pp. 161 et seq. and 251 et seq. The rules as adopted October 24, 1900 are found in Proceedings, vol. iii, pp. 279–280.) In the October meeting in 1901 amendment was made to rule 3, to permit one railroad to deliver a foreign car either loaded or empty to another railroad for switching service but that its use was to be confined to switching service and its return made either to

the Interstate Commerce Commission of January, 1917.[1] But the theory is not a sound one. Its application means much unnecessary switching, delay to shippers in securing equipment, and an undue amount of empty car mileage. It is often difficult to get cars out of congested terminals, even disregarding ownership. In the winter of 1917 the Pennsylvania Railroad Company in some instances used a crane to lift cars bodily from one track to another rather than switch them through miles of congested yards.[2] When the Railroads' War Board was created, this body modified the plan of returning cars to owners; and for some classes of equipment they simply based the number each road was to receive upon the number it owned. The United States Railroad Administration has gone further in the same direction. The economies in pooling railway equipment are clear and if the railways are relinquished to private operation after the war a plan ought to be worked out which will continue the pooling of equipment and compel each carrier to furnish its fair proportion of the total supply. The formation of separate corporations which would own all equipment and lease it to the railroads would doubtless make a satisfactory organization through which government control could be made effective. Under some such plan railroads which have not provided themselves with sufficient equipment could be held to a strict accountability.

But there is also the question of car service as it applies between railroads and shippers. This the Esch-Pomerene law does not cover except in an indirect

the home road or the delivering road. A new section (No. 15) was added to define switching service. Again amendment was offered to permit loading a car in the opposite direction of the home road. Much warm discussion followed and it was urged that this would open the door to the use of foreign cars in local service, especially in a state like Connecticut which allowed 96 hours free time. The Association refused to adopt the amendment by a vote of 18 to 28. (Proceedings, vol. iii, p. 410 et seq.)

[1] 42 I. C. C. R. 657.

[2] Testimony of Commissioner Hall, Esch Hearings, p. 17.

manner. As has been indicated there is a wide variety of practice on the part of railways in their transactions with shippers, depending sometimes upon competition between carriers, sometimes upon state legislation. When, for example, increased demurrage has been applied by one carrier, or by the carriers in one state, altho it has produced desirable results in releasing equipment more promptly, it has been difficult to maintain the advanced scale because of the lower demurrage charges of other carriers, or because of a lower scale enforced in a bordering state. This has meant unfair distribution of equipment between shippers and between states. Julius Kruttschnitt has pointed out that the average detention of equipment for a given period by consignees in Oregon was about 50 per cent greater than in California where demurrage charges were much higher.[1] It would appear therefore, that the Esch-Pomerene law will be ineffective, even within the narrow scope of car service which it is designed to cover, as long as the separate states have laws and commission rulings which are wholly independent of and inconsistent with orders which federal authorities may care to make. The commerce of this country has become so complex that intrastate regulations cannot be enforced without great detriment to the shipping public generally; and to quote the Hadley Commission "It is a matter of direct concern to the federal government that the facilities for handling commerce between the states should not be impaired."[2]

Two obstacles will be encountered in attempting to take power over railway service from the states and give it to the federal government. One of these difficulties is legal, the other is political. Those opposed to an extension of federal control will contend that the federal government has no right to exercise control over intrastate commerce, but in view of the Shreveport doctrine

[1] Newlands Hearings, p. 923. [2] Rept. Railroad Securities Commission, p. 8.

which has been set forth in a number of cases it is not probable that the legal obstacle will be insurmountable. It will doubtless become increasingly clear to the courts that state regulation of intrastate commerce is impossible without at the same time affecting materially interstate commerce. According to testimony before the Newlands Committee about 85 per cent of all traffic is interstate.[1]

The political difficulty in the way of the adoption of federal regulation of railway service is concerned with centralized *versus* local control. It will be contended that a centralized control cannot be sufficiently familiar with local conditions to be effective and efficient. There is much to be said for this objection. The United States Railroad Administration began with a Director General of Railroads. Gradually this administration has decentralized. Regions have been established, and these in turn have been further subdivided. It has apparently been realized that first hand information is important in conducting a railroad successfully. The predominance of the divisional type of organization found on American railroads is further evidence of the value of knowledge of local conditions. If there is to be control of railway service, first hand information concerning operating conditions would appear to be indispensable. How then can the disadvantage of state regulation be eliminated and yet retain the advantages which come from intimate association with actual conditions. Possibly this could be done by some plan which would permit the states to coöperate with the Interstate Commerce Commission but which would make the orders of the federal commission paramount. A better plan and one which has the support of an increasing number of students of transportation, would be to divide the country into a number of regions, something

[1] Hearings, p. 78, testimony of A. P. Thom.

after the plan of the federal reserve banking system. These regions should in size and shape conform to traffic conditions. Such regions would, therefore, ignore state lines. It would then be logical to establish commissions for these regions. State commissions would not necessarily be discontinued but could give their time to public utilities within the state; possibly they could be of value in an advisory capacity to regional commissions. It may be contended that such a proposed decentralization of regulation indicates clearly that the present decentralized plan should not be disturbed. But the present plan of arbitrary state lines, in no sense coincides with traffic needs, and regulation of railway service by the various states seriously interferes with interstate traffic. The proposed plan would be sufficiently elastic to take advantage of the knowledge of local conditions and at the same time it would be possible to work out more equitable rules and regulations affecting railway service, among railroads themselves, and between railroads and shippers.

If we assume that as a result of our experience during the war, government ownership should be adopted in the United States or that some form of government operation be continued, much of the conflict between the states and the federal government and between the states themselves would presumably be eliminated; but there would nevertheless be need of more control of railway service. It must not be forgotten that government ownership is not an aim. It is a means. Standards of service, therefore, and the machinery for carrying them out are as necessary under one system as under another, altho it is probably true that the absence of any necessity on the part of separate railroads to earn dividends might make enforcement of some of the regulations of railway service easier. If the railroads were owned

by the government or operated by it as at present it would make little difference if Great Northern cars were used to haul ice from Maine to Boston, so far as the Great Northern itself would be concerned; but there would remain the inequalities of service between the shippers of the Northwest and those of New England.

A little consideration will show, too, that government ownership or government operation would not change the situation as it affects different classes of shippers within the same state. Reference is made here especially to the one-way and two-way shippers. What this means in actual practice may be shown by a concrete case which came before the Ohio Public Utilities Commission during its two-weeks hearings on coal shortage in February, 1917.[1] A Mr. Mobley, agent for the Baltimore and Ohio Railroad at Cincinnati, was asked to testify how many cars had been ordered by a long list of industrial concerns and what proportion of those ordered had been assigned to them. To take a typical case he replied that for the month of January, 1917, a certain steel and iron company ordered 89 cars and was furnished with 372. When asked to explain why more cars were supplied than were actually ordered, he pointed out that " furnished " in his records meant the number of loaded cars sent out by that mill over his line; that the discrepancy was due to the fact that that concern received large inbound shipments daily and that they were therefore able to provide themselves with most of the empties they needed and hence they did not need to ask the railroad for many in addition. The same result is seen in many of our agricultural states where there are many important grain shipping points that get very few cars in under load yet these are the very places that need large numbers of cars for outbound grain shipments. Other places in these states more populous and more

[1] These hearings were not printed.

diversified in their activities receive more inbound freight, and hence at times there is a very unequal distribution of railway equipment between different places in these states. Finally, the same situation presents itself on a still larger scale in the unequal distribution of equipment between different sections of the country. Government ownership would not change the essential characteristics of the one-way and two-way shippers or eliminate the fundamental features of our producing and consuming areas. But in any case justice and efficiency demand that control over railway service be taken out of the hands of the railroads, the shippers and the states and given to federal authorities, so organized that they can have a knowledge of local conditions and at the same time a view of transportation problems that extends beyond the boundaries of any state or traffic area. If it be contended that such control is placing railway management in the hands of government authorities who know nothing about it, the reply is that the railroads have confessed their inability to enforce their rules either against each other or against shippers; hence the public profits little by the fact that the railroads know what ought to be done. Railroad men and shippers of long experience should, however, be utilized by the government in its control of railway service. These men should be able to make equitable rulings which can be backed by the force of law, if necessary. With proper federal control shippers in our large and congested terminals might look forward to some plan of immediate delivery of less than car load shipments and more rigid rules for disposition of car load freight. Shippers in rural districts might realize that some storage room for grain plus improved highways would not only net them a better margin of profit but lessen the difficulties for themselves and the public generally which are

annually experienced because of their attempt to market their crops within a comparatively short period of time. Railroads now admit that regulations which have been forced upon them have increased their revenue, protected them against each other, and benefited the public. It is time shippers learned the same lesson.

To summarize, there is a danger that the war will be accepted as the cause of our unsatisfactory railway service. Furthermore, the popular idea that the trouble is mainly due to car shortage is a narrow view of the question. Evidence indicates that traffic has outgrown the transportation plant; and that for more than a decade whenever business has been brisk, railway service has been inadequate and inefficient. Assuming that under a system of private ownership sufficient revenue will be allowed to carriers to enable them to provide adequate facilities or that under government ownership they would be provided by the government itself, there would remain the question of the proper use of these facilities to prevent unfairness in the one case among railway systems and under either plan to prevent injustice among different classes of shippers and among various sections of the country. In other words government operation or government ownership will not eliminate the defects of railway service which are due in some cases to the strategic advantages which some groups of shippers enjoy, or in other instances to the size of our country and its geographical division of labor. These fundamental characteristics being the same under private or government ownership, there is a need in any case of more comprehensive regulation of railway service.

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APPENDIX

TABLE I

CAR SURPLUSES AND CAR SHORTAGES, JANUARY 2, 1907 TO OCTOBER 15, 1914, AND FEBRUARY 1, 1915, TO DECEMBER 1, 1917

Date	Total Surplus	Total Shortage	Net Surplus	Net Shortage
1907				
Jan. 2	29,855	115,348	....	85,493
Feb. 6	12,018	149,865	....	137,847
April 10	15,037	96,154	....	81,117
May 15	21,437	55,428	....	33,991
May 29	24,945	42,970	....	18,025
June 12	32,325	40,343	....	8,018
June 26	32,859	34,458	....	1,599
July 10	58,183	20,813	37,370	....
July 24	50,954	18,753	32,201	....
Aug. 7	46,650	18,814	27,836	....
Aug. 21	40,477	22,628	17,849	....
Sept. 4	21,639	31,679	....	10,040
Sept. 18	17,251	64,920	....	47,669
Oct. 2	6,193	64,469	....	58,276
Oct. 16	4,258	85,764	....	81,506
Oct. 30	3,946	90,757	....	86,811
Nov. 13	12,201	57,003	....	44,802
Nov. 27	40,348	17,964	22,384	....
Dec. 11	119,339	4,520	114,819	....
Dec. 24	209,310	724	208,586	....
1908				
Jan. 8	341,763	653	341,110	....
Jan. 22	342,580	738	341,842	....
Feb. 5	343,928	1,100	342,828	....
Feb. 19	322,513	1,249	321,264	....
Mar. 4	314,992	1,619	313,373	....
Mar. 18	297,042	1,007	296,035	....
April 1	307,510	528	306,982	....
April 15	375,770	146	375,624	....
April 29	413,605	267	413,338	....
May 13	404,534	159	404,375	....
May 27	381,904	125	381,779	....
June 10	349,994	427	349,567	....
June 24	313,298	451	312,847	....
July 8	303,560	518	303,042	....
July 22	308,680	509	308,171	....
Aug. 5	281,621	635	280,986	....
Aug. 19	253,003	854	252,149	....
Sept. 2	222,632	1,418	221,214	....
Sept. 16	173,587	2,935	170,652	....
Sept. 30	133,792	8,114	125,678	....
Oct. 14	115,036	13,199	101,837	....
Oct. 28	110,912	10,839	100,073	....
Nov. 11	121,174	11,659	109,515	....
Nov. 25	132,829	9,210	123,619	....
Dec. 9	175,643	1,679	173,964	....
Dec. 23	222,077	1,019	221,058	....

Date	Total Surplus	Total Shortage	Net Surplus	Net Shortage
1909				
Jan. 6	333,019	506	332,513	....
Jan. 20	311,664	358	311,306	....
Feb. 3	301,571	288	301,283	....
Feb. 17	301,441	470	300,971	....
Mar. 3	299,925	685	299,240	....
Mar. 17	291,418	550	290,868	....
Mar. 31	296,600	399	296,201	....
April 14	296,663	343	296,320	....
April 28	282,328	497	281,831	....
May 12	284,479	187	284,292	....
May 26	273,890	1,240	272,650	....
June 9	277,559	285	277,274	....
June 23	262,944	827	262,117	....
July 7	260,277	530	259,747	....
July 21	243,324	339	242,985	....
Aug. 4	207,173	1,626	205,547	....
Aug. 18	159,424	2,009	157,415	....
Sept. 1	110,576	3,899	106,677	....
Sept. 15	78,798	7,425	71,373	....
Sept. 29	53,388	14,582	38,806	....
Oct. 13	35,977	23,431	12,546	....
Oct. 27	30,896	36,636	....	5,740
Nov. 10	36,616	39,902	....	3,286
Nov. 24	39,528	27,496	12,032	....
Dec. 10	57,470	18,593	38,877	....
Dec. 22	58,354	24,054	34,300	....
1910				
Jan. 5	52,309	13,893	38,416	....
Jan. 19	51,836	24,992	26,844	....
Feb. 2	51,600	26,625	24,975	....
Feb. 16	45,513	31,204	14,309	....
Mar. 2	45,315	29,907	15,408	....
Mar. 16	44,529	27,187	17,342	....
Mar. 30	45,672	19,786	25,886	....
April 13	84,887	7,530	77,357	....
April 27	102,085	5,766	96,319	....
May 11	127,148	4,555	122,593	....
May 25	115,390	4,729	110,661	....
June 8	129,508	2,729	126,779	....
June 22	125,644	3,011	122,633	....
July 6	143,824	959	142,865	....
July 20	134,594	1,293	133,301	....
Aug. 3	105,564	2,783	102,781	....
Aug. 17	78,760	5,081	73,679	....
Aug. 31	60,022	9,293	50,729	....
Sept. 14	54,890	7,814	47,076	....
Sept. 28	42,469	17,941	24,528	....
Oct. 12	33,735	20,419	13,316	....
Oct. 26	29,131	21,896	7,235	....
Nov. 9	34,581	21,000	13,581	....
Nov. 23	43,060	14,673	28,393	....
Dec. 7	53,915	11,901	42,014	....
Dec. 21	62,118	10,705	51,413	....

Date 1911	Total Surplus	Total Shortage	Net Surplus	Net Shortage
Jan. 4	110,432	3,508	106,924	....
Jan. 18	122,297	2,477	119,820	....
Feb. 1	156,355	1,287	155,068	....
Feb. 15	175,609	1,942	173,667	....
Mar. 1	192,673	2,831	189,842	....
Mar. 15	208,527	1,266	207,261	....
Mar. 29	196,217	1,330	194,887	....
April 12	187,219	1,166	186,053	....
April 26	189.524	2,518	187,006	....
May 10	188,847	1,569	187,278	....
May 24	168,233	835	167,398	....
June 7	169,006	2,204	166,802	....
June 21	165,934	2,764	163,170	....
July 5	165,508	1,887	163,621	....
July 19	150,433	1,361	149,072	....
Aug. 2	130,136	2,045	128,091	....
Aug 16	108,000	3,830	104,170	....
Aug. 30	88,866	4,325	84,541	....
Sept. 13	70,722	6,439	64,283	....
Sept. 27	58,382	8,344	50,038	....
Oct. 11	48,854	12,957	35,897	....
Oct. 25	39,306	18,774	20,532	....
Nov. 8	45,290	18,776	26,514	....
Nov. 22	43,059	19,949	23,110	....
Dec. 6	53,840	17,697	36,143	....
Dec. 20	88,646	11,832	76,814	....
1912				
Jan. 3	142,316	6,378	135,938	....
Jan. 17	102,479	12,194	90,285	....
Jan. 31	55,592	23,011	32,581	....
Feb. 14	50,886	36,928	13,958	....
Feb. 28	44,984	37,142	7,842	....
Mar. 13	46,028	42,985	3,043	....
Mar. 27	52,682	33,974	18,708	....
April 11	94,943	15,554	79,389	....
April 25	151,186	12,305	138,881	....
May 9	136,776	6,678	130,098	....
May 23	123,683	7,482	116,201	....
June 6	89,208	2,822	86,386	....
June 20	73,464	5,746	67,718	....
July 4	70,731	6,707	64,024	....
July 18	75,389	6,467	68,922	....
Aug. 1	65,904	9,394	56,510	....
Aug. 15	58,623	14,722	43,001	....
Aug. 29	36,047	26,297	9,750	....
Sept. 12	27,380	36,000	....	8,620
Sept. 26	26,754	44,547	....	17,793
Oct. 10	22,810	54,389	....	31,579
Oct. 24	17,289	67,270	....	49,981
Nov. 7	19,897	71,156	....	51,259
Nov. 21	22,363	73,475	....	51,112
Nov. 30	26,135	62,536	....	36,401
Dec. 14	26,614	61,006	....	34,392
Dec. 31	50,659	33,601	17,058	....

Date	Total Surplus	Total Shortage	Net Surplus	Net Shortage
1913				
Jan. 15	53,230	24,791	28,439	....
Feb. 1	62,045	24,785	37,260	....
Feb. 15	52,700	30,517	22,183	....
Mar. 1	58,529	27,148	31,381	....
Mar. 15	57,998	20,223	37,775	....
April 1	68,792	10,804	57,988	....
April 15	70,715	13,217	57,498	....
May 1	53,977	14,178	39,799	....
May 15	61,269	10,975	50,294	....
May 31	60,291	9,383	50,908	....
June 14	71,126	7,199	63,927	....
June 30	70,740	7,036	63,704	....
July 15	76,280	6,875	69,405	....
Aug. 1	69,716	11,261	58,455	....
Aug. 15	69,253	14,828	54,425	....
Sept. 1	73,576	15,270	58,306	....
Sept. 15	61,753	21,594	40,159	....
Oct. 1	41,994	31,620	10,374	....
Oct. 15	37,198	43,246	....	6,048
Nov. 1	38,276	40,118	....	1,842
Nov. 15	46,059	23,407	22,652	....
Dec. 1	67,466	10,212	57,254	....
Dec. 15	107,513	5,968	101,545	....
1914				
Jan. 1	190,521	1,671	188,850	....
Jan. 15	217,274	2,385	214,889	....
Feb. 1	211,960	2,282	209,678	....
Feb. 14	199,385	2,333	197,052	....
Mar. 1	159,480	5,573	153,907	....
Mar. 15	132,010	7,145	124,865	....
April 1	141,525	2,013	139,512	....
April 15	213,324	455	212,869	....
May 1	230,533	1,654	228,879	....
May 15	239,406	764	238,642	....
June 1	242,572	770	241,802	....
June 15	232,994	660	232,334	....
July 1	220,875	1,333	219,542	....
July 15	228,384	1,843	226,541	....
Aug. 1	198,998	2,333	196,665	....
Aug. 15	174,260	2,115	172,145	....
Sept. 1	165,244	1,918	163,326	....
Sept. 15	138,108	2,059	136,049	....
Oct. 1	133,382	2,355	131,027	....
Oct. 15	154,342	2,360	151,982	....

Date	Total Surplus	Total Shortage	Net Surplus	Net Shortage
1915				
Feb. 1	280,573	1,162	279,411	....
Mar. 1	322,290	543	321,747	....
April 1	327,441	357	327,084	....
May 1	292,269	966	291,303	....
June 1	300,146	218	299,928	....
July 1	276,421	785	275,636	....
Aug. 1	266,312	948	265,364	....
Sept. 1	191,309	6,300	185,009	....
Oct. 1	88,351	10,010	78,341	....
Nov. 1	55,793	27,525	28,268	....
Dec. 1	60,793	23,391	37,402	....
1916				
Jan. 1	70,391	23,310	47,081	....
Feb. 1	53,611	33,312	20,299	....
Mar. 1	43,025	62,562	....	19,537
April 1	52,274	47,636	4,638	....
May 1	63,344	29,983	33,361	....
June 1	70,310	12,617	57,693	....
July 1	68,035	15,801	52,234	....
Aug. 1	49,753	39,991	9,762	....
Sept. 1	45,044	64,917	....	19,873
Sept. 30	34,157	94,854	....	60,697
Nov. 1	24,837	139,745	....	114,908
Dec. 1	21,166	128,944	....	107,778
Dec. 31	39,635	101,882	....	62,247
1917				
Feb. 1	27,069	137,057	....	109,988
Mar. 1	25,294	155,376	....	130,082
Mar. 31	19,467	164,264	....	144,797
May 1	19,026	167,653	....	148,627
June 1	23,850	130,449	....	106,649
June 30	28,669	106,351	....	77,682
Aug. 1	43,481	77,257	....	33,776
Sept. 1	50,783	85,388	....	34,605
Oct. 1	24,297	96,873	....	72,576
Nov. 1	11,293	159,787	....	148,494
Dec. 1	12,122	132,036	....	119,914

REVIEWS

LAUGHLIN'S CREDIT OF THE NATIONS: A STUDY OF THE EUROPEAN WAR[1]

One of the difficulties under which the social sciences, as contrasted with the physical sciences, have always labored is the impossibility of initiating and carrying through laboratory experiments for the purpose of testing the accuracy of hypotheses. The experience of the past has been used to prove or disprove tentative theories, but these experiences often contain disturbing factors, and it is seldom possible by this means to isolate and determine the effect of a single factor, as can be done in an experiment in physics or chemistry. In the events of the present war, however, Professor Laughlin finds the needed social laboratory for the testing of theory. Never has credit been subjected to greater shocks or strains than during the present struggle; never has credit been used on so great a scale; and never have such diverse methods been used to safeguard it. Here is a wonderfully fruitful field for observation and induction, of which Professor Laughlin has fully availed himself. The working of credit in the principal belligerent countries is found to illustrate and prove the theory of money and credit previously elucidated by the author in his *Principles of Money*.

The book is divided into six chapters, of which the first describes briefly the great industrial advance achieved by all the European nations, but especially by Germany, during the thirty years prior to the outbreak of the war. Germany's remarkable industrial development provided the economic power and efficiency which made militarism possible. Because Germany was energetic and thrifty she could afford the

[1] Credit of the Nations: A Study of the European War. By J. Lawrence Laughlin, New York, 1918. Charles Scribner's Sons. Pp. xiv, 406. Price $3.50.

luxury of militarism, as Professor Veblen has put it. Add to this a colossal national ambition and the cause of the war is given. It was this dominating spirit which guided the use of the new wealth into the channels of conquest.

In the second chapter, Professor Laughlin recapitulates briefly his theory of credit, and describes its functions in time of war. Credit is based on goods. When the war began there was a sudden stoppage of trade or exchange of goods. Multitudes of persons had demand liabilities falling due, to meet which they depended upon payment by their debtors. "If not able to pay in cash, because they cannot collect, can they offer an acceptable means of payment? Here we find the crux of the whole crisis in credit brought on by the war" (p. 65). The methods used in England, France, and Germany to provide these "acceptable means of payment," to transmute uncollectible credits into immediate means of payment, are described in the next three chapters, and constitute the main thesis of the volume.

In no country was the crisis more acute than in England. Indeed, Professor Laughlin finds in her financial unpreparedness clear proof that she did not anticipate war. While the Bank of England responded gallantly to the needs of the occasion, the joint stock banks showed the white feather and curtailed their loans instead of expanding them. They had a mass of unliquid bills and tried to protect themselves. Accordingly the government suspended the bank act, proclaimed a moratorium, and authorized the issue of currency notes. Professor Laughlin concludes that neither of the last two measures was necessary and that the last was a mistake. It was not more money that was needed, but a setting in motion again of the machinery of credit. On the other hand, the means taken to maintain the gold standard, to stabilize foreign exchange, and to guarantee the Bank of England against loss from bills discounted by it (involving a possible ultimate loss to the government of $150,000,000) are all approved, as well as the policy of taxation and loans. As to the ability of Great Britain to carry the enormous indebtedness created by the war, the author entertains no doubt. Indeed

he believes the country will emerge from the conflict strengthened and awakened.

A study of conditions in France throws doubt, Professor Laughlin thinks, upon the widely heralded organization of credit in that country. Owing to the great centralization of banking in the Bank of France the responsibility of providing the necessary credit, of liquefying the assets frozen by the outbreak of war, was thrown upon that institution. This need it met by increasing its discounts and advances, both to private businesses and to the state. But the establishment of a moratorium, the suspension of specie payments, and the great increase of bank notes are held to have been unnecessary and ill-advised. There is in France a confusion of monetary and fiscal functions which contrasts strikingly with the English system and offers a warning to our country against money inflation and especially of an inconvertible paper currency. As to the ability of the French people to carry the prodigious war debt and the heavy taxation involved, Professor Laughlin concludes that they can do so "if nearly all the margin of goods produced by an energetic people over and above the necessaries of life" are devoted to this purpose.

Germany, however, offers the *abschreckendes Beispiel* in the domain of credit. Through the Reichsbank which is under strong imperial control, the joint stock banks, the loan bureaus, the municipal bureaus, and the war credit banks, it was planned to mobilize credit so as to provide every one with "cash" and avoid a moratorium. Taxation was not to be resorted to, but the necessary funds for financing the war were to be obtained by temporary loans which would be repaid ultimately from the heavy indemnities collected from the conquered nations. Both the military and financial plans have miscarried. Germany is now saddled with an enormous debt, an inconvertible paper money, a tremendous inflation of her credit, and a 50 per cent depreciation in the purchasing power of the mark. Professor Laughlin concludes that even now Germany is not solvent and that the real values behind the credits have shrunk in many instances so as to render the latter worthless. As to her ability to carry the staggering

burden of the war, he concludes that her racial characteristics will enable her to pull through and even to regain her former commercial position.

In the last chapter are described the events in the United States which preceded our entry into the war. The movements of foreign exchange, the changes in our foreign trade, our loans to Europe, and the ensuing effects upon our credit institutions are clearly set forth. Warm approval is given the Federal Reserve system and the services it was able to render.

Professor Laughlin has embodied in this volume a vast amount of careful research and has brought together in scholarly fashion a mass of scattered material. It is the more to be regretted therefore that he has thought it necessary to introduce so much that is polemical. He never loses a chance to belabor the "obsolete," the "archaic and fallacious" quantity theory of money. His interpretations of the workings of credit are colored throughout by his own theory of credit and money. But if allowance be made for the personal factor the book will be found to be the most valuable exposition of principles and repository of information which has yet been produced in the domain of war finance.

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ADAMS' AMERICAN RAILWAY ACCOUNTING[1]

The author states in the preface that this book is a simple analysis of a standardized system of business records, and that it is designed to be helpful to three classes: (1) those who are coming to see that the truthful keeping of records is a solvent for current industrial problems; (2) accounting experts from foreign lands who may desire to learn American methods and apply them to their local problems; and (3) practical accountants, particularly the younger railroad accountants who did not take part in that nation-wide symposium of 1907 to

[1] American Railway Accounting. By Henry C. Adams. Henry Holt & Company, 1918. pp. 465.

1910, out of which emerged American railroad accounting as a standardized system, and who may find in the book an explanation of many of the rules they now apply.

Certainly no one should be better qualified to write the history of the successive steps which have brought about uniformity in railroad accounting, or to explain the reasons which underlie the rules of the Interstate Commerce Commission's accounting classifications. From 1887, when the Commission was created and given jurisdiction over accounts, until 1911, Professor Adams was actively in charge of the accounting and statistical work of the Commission, and he has left a lasting monument in the earlier accounting classifications. He gives full credit to the American Association of Railway Accountants, to whom the volume is dedicated, for their efficient coöperation, but the credit for harmonizing conflicting viewpoints during the critical period of standardization, and for making effective a workable uniformity in railroad accounting must be accorded to Professor Adams more than to any other one person.

The introductory chapter deals in the abstract with the task of the railroad accountant. "The accountant stands at the center of an organized industry; every transaction passes through his hands; every problem must receive the imprint of his mind, for it is he who supplies in concrete form the information upon which reliance must be placed for deciding administrative policies. No other single officer of a great industry is required by virtue of his official position to know as much of all the operations in all departments as the accounting officer."

Chapter 2 deals with the structure of a system of railroad accounts, defining the agencies of transportation and the accountant's definition of a steam railroad. Under the general headings of (1) construction, (2) organization, (3) operation, (4) corporation transactions, and (5) functions of ownership, the chapter contains a very helpful analysis of railroad functions.

The third chapter treats construction costs prior to operation and discusses such questions as the basis of construction

charges, cost and its relation to investment, interest and discount, and depreciation during construction. This is followed by a chapter on construction accounts subsequent to operation, additions and betterments, renewals, and abandoned property. It throws much light on the underlying reasons for the rules which apply to the division of costs between additions and betterments on one hand and operating expenses on the other hand.

The fifth chapter discusses operating expenses and summarizes the philosophy underlying the grouping of the primary expense accounts. Especially helpful is the treatment of the depreciation accounts, a feature which met with strong opposition on the part of many railroads when the subject was under discussion and when equipment depreciation accruals were required by the 1907 classification. Even now there is much misunderstanding concerning the philosophy of these accounts. As between the several methods, Professor Adams favors the " straight line " plan, because it is simple, easily understood, and takes away from the management the temptation of arbitrary adjustments for the sake of making a temporary showing. As to the annuity plan, which is used by some roads to justify a low rate of depreciation charge, he points out that it cannot be assumed that the interest on the amounts set up for the charge in the first year reduces the amount of the charge for the second year unless the management actually creates a depreciation fund to balance the depreciation reserve — something which is rarely done.

In dealing with operating revenues in Chapter 6, Professor Adams is in a critical mood. As he sees it the interest of the auditor in checking revenues has had more consideration than the interest of the traffic manager (who is responsible for naming the rates and for the development of traffic) and of the public service commissions (who must pass upon the reasonableness of such rates). He believes that there should be a closer relation between the revenue accounts and the tariffs. His criticism is somewhat vague and his constructive suggestions are indefinite. One may infer that he advocates something akin to the German accounting methods (altho they are

not referred to) which divide revenues and all traffic statistics by classes, as, for example, the revenues, the tons moved and the ton miles produced under the exceptional tariffs and separately for each of the several class tariffs. The same principle is applied to German passenger accounting. The published reports show the number of passengers, the passenger miles, the revenues, the revenue per passenger and per passenger mile, and the average journey for each of the four classes and for military passenger traffic, with a segregation of suburban passenger traffic. The revenue classifications of the Interstate Commerce Commission do not now require, and never have required, the subdivision of traffic statistics by classes. It may be inferred further that Professor Adams has only recently formed the conclusions set forth in his book, or that either he was not thoroly convinced as to their practicability and desirability when he had charge of the accounts or that he then lacked support in promulgating the revenue classifications accordingly.

In a somewhat guarded manner he calls attention to the fact " that current administrative and judicial opinion looks upon the determination of a reasonable rate as a function of operating expenses," and he takes occasion to deplore the tendency toward the " cost of service " theory. His fundamental criticism is that the relation of railroad rates to the industrial development of the nation finds no place in the cost theory of rates. He fails to make clear, however, the basis for his statement that the development of the revenue classification has been hampered by the cost theory and that that theory is responsible for " the indifference of traffic officials, and the relatively inferior grade of commercial intelligence commonly secured for service in the traffic department."

The remaining three chapters relate to the income, profit and loss, and the general balance sheet accounts. They are helpful and illuminating, altho treated broadly rather than in detail.

On the whole it would seem that the book is of greatest value to the first class of reader to whom it is addressed, namely, the professional accountant and the economist, who

are interested in the broad philosophical discussion of accounting principles and in the analogy between railroad accounting and industrial accounting. The style is somewhat labored. In many places throughout the volume the meaning would be clearer and the message would be more effective were the thought stated in less involved phraseology.

In one respect the book may be disappointing to railroad accountants who may expect to find something more than the volume contains. Knowing of Professor Adams' intimate connection with the development of the accounting classifications, they may look for a more personal tone than the author has assumed, or for interesting historical sidelights on many moot points and for reasons for reversal of policy and practice. For example there is no reference to the subject of a division of expenses between the freight and passenger services, altho such a division was required by the first classification of operating expenses issued by Professor Adams. After an experience of a few years the requirement was withdrawn, to be renewed after Professor Adams had left the Commission. His opinion on the advisability of charging out depreciation on physical structures as well as on units of rolling stock is not given, and there are some troublesome points in connection with accounting for additions and betterments (such as the Kansas City Southern case) which the railroad accountant would like to see discussed.

The book contains 465 pages of which 273 are devoted to reprints of existing classifications which are, or should be, in the hands of all of the three classes of reader mentioned in the preface. These classifications are public documents obtainable at nominal prices, and there appears to be little justification for reprinting them in this volume. The same criticism, however, applies to other volumes on the same subject — Eaton, Hooper, and Sykes. The majority of readers would be more interested if the pages devoted to the lengthy appendices were used to throw further light on obscure or controversial points in the individual accounts.

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NOTES AND MEMORANDA

ORGANIZATION OF AMERICAN RAILROADS UNDER GOVERNMENT CONTROL

On December 31, 1916, there were 2905 railroad companies in the United States, operating 185 major systems, 221 switching and terminal companies, 1434 plant facility roads, and 765 so-called " short line " railroads. A momentous era in the organization of the principal lines opened on December 26, 1917, when the President took control and placed under the authority of Director General McAdoo the roads considered an essential part of the transportation system of the nation. Since that time, many of the plant facility and short line railroads have been released from federal control. The roads retained are being operated as one system, a method impossible under laws governing the railroads when they were under private control.

Changes by which this new order has brought about, have been far-reaching in character, but have been put into effect with such consideration for existing organizations that there has been no confusion. Every change has been made with due regard to actual conditions and has been brought about to effect practical reforms rather than to carry out theoretical preconceptions. The results already achieved have proved that most of them were to the advantage of the railroad themselves, as well as to the shipping and traveling public.

The disadvantages of the competitive operation of the railroads, at least in war times, are self-evident. Take the question of the routing of freight and passengers alone. Where it was to the financial advantage of every road to carry as much traffic as possible, it was manifestly impossible to always haul freight by the shortest routes or to take advantage of the best

grades. In many cases, because of competition, passenger trains of competing roads, each frequently but partially filled, left the same point at the same time and arrived at the same destination at the same time, altho economy and efficiency of operation would naturally require that each train carry a full load and leave at a different time. The same is true of terminals and ticket offices. Plainly it is in the public welfare to have consolidated terminals and consolidated ticket offices wherever possible.

The first act of the Director General of Railroads, after taking control of the railroad systems of the United States under order of the President, was to issue instructions that all officers and employees should continue in the performance of their regular duties, reporting to the same offices as previously. The railroads were placed under federal control in the midst of unusually severe weather conditions, and the primary duty facing the Railroad Administration was to meet this situation. Until the severity of the winter abated every energy of the Railroad Administration was directed to the sole object of moving coal and other necessary war material.

On January 18 the Director General divided the country, from a railroad standpoint, into regions — namely, the Eastern, Southern, and Western Regions, placing an experienced railroad man in charge of each, and giving instructions that "orders issued by the gentlemen named in their capacity or Regional Directors, will be issued by authority of the Director General, and will be respected accordingly." Since that time, and for the purpose of better administration, four additional regions have been added, and at the present time the railroad mileage of the country has been divided as follows:

1. The Eastern Region, A. H. Smith, Regional Director, New York, comprises the lines located chiefly in the New England States, in New York State, in the northwestern portion of Pennsylvania, and in Ohio, Indiana, and Michigan.

Some of the more important lines included in this region are the New York, New Haven and Hartford; the Boston and Maine; the Boston and Albany; the New York Central; the Nickel Plate, the West Shore, the Delaware and Hudson; the Lehigh Valley; the

Delaware, Lackawanna and Western; the Baltimore and Ohio west of Pittsburgh; the Pennsylvania west of Pittsburgh, and the Buffalo, Rochester and Pittsburgh.

2. The Allegheny Region, C. H. Markham, Regional Director, Philadelphia, comprises the lines located chiefly in the state of Pennsylvania, the northern part of West Virginia, and some of the lines traversing Maryland and New Jersey. It also includes the Long Island lines as an extension of the Pennsylvania road east of Pittsburgh.

Among the more important lines in this region are the Baltimore and Ohio, and the Pennsylvania lines east of the Ohio River; the Bessemer and Lake Erie; the Central of New Jersey; the New York, Philadelphia and Norfolk; the Philadelphia and Reading, and the Western Maryland.

3. The Pocahontas Region, N. D. Maher, Regional Director, Roanoke, Va., contains most of the east and west lines traversing Virginia and West Virginia and a certain portion of the mileage penetrating the coal fields of Kentucky and southern Ohio.

Among the more important lines in this region are the Chesapeake and Ohio east of Louisville, Columbus, and Cincinnati; the Norfolk and Western, and the Virginian, including the terminals of all railways at Norfolk, Portsmouth, and Newport News, Va., and the Norfolk and Portsmouth Belt lines.

4. The Southern Region, B. L. Winchell, Regional Director, Atlanta, Ga., includes most of the north and south lines, traversing the territory south of the Ohio and Potomac Rivers and east of the Mississippi River.

Among the more important lines in this region are the Atlantic Coast Line, the Seaboard Air Line, the Southern, the Norfolk Southern, the Louisville and Nashville, the Florida East Coast, the Central of Georgia, the Alabama Great Southern, and the Illinois Central lines south of Cairo, Ill.

5. The Northwestern Region, R. H. Aishton, Regional Director, Chicago, contains most of the mileage running west and northwest of Chicago and Kansas City to and toward the Pacific coast. Generally this mileage traverses northern Illinois, Wisconsin, Minnesota, northern Iowa, northern Nebraska, North and South Dakota, Wyoming, Montana, Oregon and Washington.

Among the more important lines included in the Northwestern region are the Chicago and Northwestern; Chicago, Milwaukee and St. Paul; the Chicago Great Western; the Great Northern; the Minneapolis and St. Louis; the Northern Pacific; the Minneapolis, St. Paul and Sault Ste. Marie; the Oregon-Washington Railroad and Navigation Company, and the Southern Pacific lines north of Ashland, Oregon.

6. The Central Western Region, Hale Holden, Regional Director, Chicago, comprises the lines running in a southwesterly direction from Chicago and Kansas City to and toward the Pacific coast. The mileage of this district traverses the states of Illinois, southern Iowa, northern Missouri, Kansas, Nebraska, Wyoming, southern Idaho, Colorado, New Mexico, Utah, Arizona, Nevada, and California.

Among the more important lines in the Central Western region are the Union Pacific; the Atchison, Topeka and Santa Fe; the Chicago, Rock Island and Pacific, excepting that portion of its lines that are included in the Southwestern District; the Chicago and Alton; Chicago and Eastern Illinois; the Chicago, Burlington and Quincy; Colorado and Southern; the Northwestern Pacific; the Oregon Short Line; the Southern Pacific lines west of El Paso and Ogden except north of Ashland, Oregon; the Western Pacific; and the El Paso and Southwestern.

7. The Southwestern Region, B. F. Bush, Regional Director, St. Louis, includes most of the lines south of the Missouri River running generally southwest and traversing the states of Missouri, Arkansas, Oklahoma, Texas, and Louisiana west of the Mississippi.

Among the more important lines in this region are the International and Great Northern; the Kansas City Southern; the Missouri Pacific System; the Missouri, Kansas and Texas; a certain portion of the Rock Island lines; the St. Louis and San Francisco; the Texas and Pacific; the Wabash lines from St. Louis to Kansas City and Omaha; the Gulf, Colorado and Santa Fe; the Fort Worth and Denver City; the Southern Pacific lines east of El Paso; and the Texas and New Orleans lines.

Under these Regional Directors have been appointed District Directors in charge of subdivisions of the Regional Districts.

In the division of the country into regions, little attention has been paid to state lines. The controlling idea has been to assemble under the management of one Regional Director the larger portion of the railroad mileage serving his territory. As a result of this arrangement, parts of several of the largest systems have been put in different regions. Since the regional division of the country and the allocation of lines and Federal Managers, there have been a few changes, once it has been decided that efficiency would be increased thereby. The system is in the process of evolution and probably there will be more changes later, altho, generally speaking, it seems likely that the present division is practical, and is achieving the desired results.

Until May 21, 1918, railroad corporations and the corporate officers were employed as the instrumentalities through which the Director General operated the properties. But at that time he decided to have operations conducted through agencies responsible exclusively to him, and therefore, the corporations were detached from any connection with operations, and the operations were put in charge of Federal Managers, and in the cases of smaller lines in charge of General Managers. Some of the officers of the corporations were requested to serve the government, and others were cut off the government payroll, altho most of those so cut off continue to serve the corporations with which they had been previously connected. Under the present system, every railroad officer in the country is without divided responsibility; all are responsible solely to the Director General. The wisdom of this course was shown when the time came to consummate contracts between the government and the railroad corporations. In that process the corporate officers were left free to represent their stockholders without any embarrassment to themselves or to the Railroad Administration. Those who accepted positions under the government had to sever all connection with the corporations. At the same time continued effort has been made to build up a spirit of coöperation between the Railroad Administration and these corporate officers representing the owners of the properties being operated by the government.

Thus the railroad organization under government control is seen to be a pyramid, with a great mass of railroad employees forming the base, the pyramid tapering up through the Federal and General Managers, then through the Regional Directors, and finally to the Director General who forms the apex of the pyramid.

Gathered about the Director General in Washington is a staff consisting of an Assistant Director General, Assistant to the Director General, a private secretary to the Director General, and Division heads having to do with the principal railroad activities. There is a Division of Finance and Purchases; a Division of Operation; a Division of Law; a Divi-

sion of Capital Expenditures; a Division of Labor; a Division of Traffic; a Division of Public Service and Accounting, and a Division of Inland Waterways, formed to manage the operation of canals, etc., included as a part of the transportation system of the nation. There is also a Railroad Administration Actuary, under whom is a Bureau for Suggestions and Complaints and other activities. The force of these divisions and of the Director General's immediate office has been kept at a minimum. The theory has been that the staff in Washington originates general policies and leaves their execution to the Regional Directors, the Federal and General Managers, and the regular officials and employees. Every effort has been made to weld these previously distinct organizations into a homogeneous whole, and this work has already progressed far.

It is not feasible to measure at this time the tangible results which these changes in organization have brought about. It is enough to say that already there have been intensive unifications of terminals and of stations; unnecessary passenger trains have been eliminated; there have been intensive reductions in organizations; a uniform freight classification has been adopted; competition as between systems and roads has been done away with, leading to many economies and simplifications; time tables have been made more simple; a universal mileage book for use on all lines under government control has been adopted; freight routes have been shortened, resulting in a development of well-graded routes for the transportation of freight, a reduction in the cost and time of transportation between many given points, and the intensive employment of both rolling stock and the equipment of the railroads; successful efforts have been made to produce better loading of freight cars and the more intensive use of railroad equipment generally.

A successful standardization of freight cars and locomotives has been brought about, thus simplifying the work of repair and making it more convenient for the equipment of one road to be used on all other roads. A supervision has been initiated and exercised from Washington over capital expenditures for improvements and betterments, so that the labor and material

supply, which is limited under war conditions, can be allocated where most needed and the railroad situation surveyed from a national standpoint rather than from that of the individual systems and lines. A uniform system of purchases has been instituted, leading to economy; the Pullman Company has been placed under the jurisdiction of a separate Federal Manager, and thus made an integral part of the Railroad Administration.

Effective coöperation has been built up between the Railroad Administration and other governmental agencies with an interest in transportation matters, with the result that efficiency has been increased in the transportation of troops and supplies needed, not only for our own army and the armies of our allies, but by the civilian population as well. The Railroad Administration has a traffic representative with the War Industries Board, the War Department, the Navy Department, the Shipping Board, the Food Administration, and the Fuel Administration. Traffic questions having to do with these organizations are handled by these Railroad Administration representatives. Another example of coöperation has been the creation and operation of the Exports Control Committee, of which a representative of the Railroad Administration is Chairman, and on which serve representatives of other government agencies interested in export problems. The duty of this committee is to so control traffic as to avoid congestion at export points.

In addition to the railroads under the control of the Director General there are a number of coastwise steamship lines including the vessels of the Clyde Steamship Company, the Mallory Steamship Company, the Merchants and Miners Transportation Company, and the Southern Steamship Company. Successful efforts have been made to synchronize the operation of these lines with the operation of the railroads of the nation in the carrying of freight and passengers.

On September 3 the Director General of Railroads made a report to the President on the work of the United States Railroad Administration for the first seven months of its existence, and in that report details were given of the way the

multiplex problems which have arisen have been solved. In general, a conservative view at the present time is that the primary work of changing from many railroad systems into one system has already been accomplished. As time goes on, improvements and changes may be expected. The organization for carrying forward this vitally important part of the war endeavor of America is now at hand. For it to forge forward only needs intensive work on the part of all members of the great organization from top to bottom, and a constant study of the possibility of reforms as well as the execution of plans already made.

BRICE CLAGETT.

WASHINGTON, D.C.

THE BEHAVIORISTIC MAN

A NEW kind of an economic man has been, or is in process of being, constructed by what is known as the behavioristic school of economists. He is the result of an over-emphasis upon the non-pecuniary and the neglect or under-emphasis upon the pecuniary motives, as the old economic man was the result of the opposite tendencies.

There can be no doubt that men have many instincts and impulses which ally them with the bower bird who contrives, the beavers who construct, the bees and squirrels who accumulate, and all gregarious creatures who work together without thought of pecuniary gains and losses, and without calculating and balancing costs and advantages of any kind. We must all acknowledge the importance of a study of the instinctive and impulsive reactions in economic life, and admit the charge that too little attention has been given to them by economists. On the other hand, a counter charge can be made with equal effect and with equal justice against the so-called behaviorists. There are three counts in this charge.

1. They fail to see that the so-called orthodox economists have made ample allowance for these instincts, impulses and

emotions, even tho they have not analyzed, described and catalogued them as fully as was desirable.

For example, in most recent theories of interest, allowance is made for instinctive saving, accumulation, storing, holding on to desirable possessions, etc. In addition to all these things, however, these theorists have claimed that the influence of calculated self-interest shows itself. A great deal of saving would take place, it is claimed,[1] even if there were no prospect of receiving interest on accumulations; but, nevertheless, some people are induced to save more when interest is added as another inducement than they would save because of these instinctive motives alone, when there was no prospect of interest. The added savings of these people who look forward to interest make up an appreciable part of the total supply of capital in any economically advancing community. Patriotism, also, and other non-pecuniary motives play a part, but it seems probable that more would be subscribed for government bonds which paid interest than for those which did not.

2. The second count in the charge is that the Behaviorists have gone as much too far in one direction as the orthodox economists have ever gone in the other direction, in that they have ignored, or at least slurred over, calculated self-interest as a factor in human behavior. If the so-called economic man of the classical school, whom, by the way, I have found described by the opponents of the classical school more specifically than by any member of that school, was too much of a calculating machine, so is the "behavioristic man" of this recent school too much of an impulsive, unreasoning, "eternal feminine" sort of a man. It seems to me that we need a balancing up of motives before we arrive at any true concept of human reactions in a modern economic society.

3. The third count in the charge is that the behaviorists, like some of the older economists, lay too much stress on the

[1] Cf. the chapters on Interest in the present writer's Distribution of Wealth; also the chapter on Self-Centered Appreciation in his Essays in Social Justice; Marshall, Principles of Economics, Bk. VI, chap. 6; Landry, L'Interet du Capital, chaps. 2 and 3; Cassel, The Nature and Necessity of Interest, chaps. 2–4; Fisher, The Rate of Interest, chaps. 12–14; Mixter, Theory of Savers' Rent, Quarterly Journal of Economics for April, 1899, pp. 245–269.

question as to what men are really like and, relatively at least, too little upon the great selective principles of economy. The question is not simply what are men actually like, but what kind of men fit best into the cosmos. What are the earmarks of a "good" man, that is, of a man who adds strength to the community or the nation? The same charge may be brought against the behaviorists that is brought against the anthropological school of moralists. It is not enough that we study the variations of human institutions, habits, morals, etc. We also want to know what institutions, habits, and moral systems work well. What kind of a nation or social organization fits in the cosmos and grows strong under the conditions of the universe. Similarly, as to individual motives, it is not simply a question as to what motives actually govern human behavior, tho it is important that we know that. It is of equal importance that we know what motives or combinations of motives work well. If we permit ourselves to use the word "ought," we want to know what motives ought to dominate. What happens, to take an extreme case, to farmers who do not save seed or accumulate capital? Is a thriftless man as strong a man, or a thriftless nation as strong a nation, as a thrifty one?

There is variability here as elsewhere. Individuals are not all exactly alike. Some are governed more largely than others by a given group of motives, others by a different group. This gives the variability which is the opportunity for selection. Which combination of motives makes the best citizen, that is, the one most useful to the group or the nation?

It is my present belief that observers and students of human behavior reach different conclusions according to the kind of people whose behavior they are studying. He who studies mainly the failures, that is, those persons who have not succeeded in fitting themselves very well into the great industrial and social organization, will reach one conclusion as to the motives which dominate in human behavior. He who studies the more favorable variations, that is, those persons who have succeeded somewhat better in fitting themselves into the whole, reaches another conclusion.

A parallel line of division is found among students of the question of the relative influence of heredity and environment as determining factors in individual success. By analogy, if one were studying jellyfish, one might find them to be the sport of circumstances, the winds, the waves, the tides and the currents. Environment seems to be everything until one asks, why were they jellyfish; then heredity comes in. A human weakling likewise seems to be the sport of circumstances. If they are favorable, he turns out well; if unfavorable, he turns out badly. Again, environment seems to be everything, until one asks, why is he so weak as to be the sport of circumstances. Then heredity has at least to be considered. If one studies sharks, however, one does not find them to be the sport of circumstances, at least not of the same circumstances as those which control the jellyfish. What is the difference? It is partly that one was born a shark and the other a jellyfish. Two men go into a shower bath. One comes out with a glow and the other with a chill. To the one a cold shower bath was favorable, to the other it was unfavorable. The difference is in the men. Two men grow up in a slum environment. One comes out sound, strong and virile; the other diseased, weak and parasitic. Why did they turn out differently?

As to the relative importance of the so-called rational and non-rational factors in human behavior, there is no reason to believe that all men are alike in this or any other particular. It may be that successful men are influenced somewhat more by the rational factors than are unsuccessful men. At any rate, the classical school with its so-called economic man was as truly a behavioristic school as any group of recent students. They were studying a different class of men in the industrial system. Perhaps both schools develop a one-sided theory of human nature because of the fact that each is studying a different class — one the successful, the other the unsuccessful class.

This has an important bearing on the question before us. There is no a priori reason for concluding that one kind of man is better than another, certainly not for concluding that a

non-calculating, impulsive man, whose economic reactions are wholly instinctive, is better than one who calculates and carefully compares costs and advantages. The latter is certainly more "human," if by that word we imply the possession of qualities which distinguish us from, rather than ally us with, the loveable brutes. After all, calculating costs and advantages seems to work well, or at least better even from the social point of view, than "going it blindly," or relying upon our instincts and impulses, however admirable these may be. The investor, for example, who calculates carefully whether a certain enterprise will pay or not is really, in the last analysis, calculating whether the utilities resulting from it will be greater or less than those destroyed or wasted in carrying it through. A nation which encourages this kind of calculation on the part of its citizens is more likely in the long run to prosper than the nation which does not.

It is the writer's opinion that "behaviorism" fits into the classical scheme of economics, and fills it out by furnishing detailed analysis and description where they were lacking before. In this respect it performs the same function as that performed a generation ago by the marginal utility theory. This was not revolutionary, tho some ardent souls who did not see where it fitted in thought, for a time, that it had scrapped the whole classical system. On the contrary, it merely furnished an analysis of demand comparable with the analysis of supply which the classical school had worked out. The behavioristic school is furnishing a detailed analysis and description of a group of factors which were taken for granted by the marginal utility and marginal productivity analysis.

In the theory of differential cost, for example, it has long been understood that cost is disinclination, and that the disinclination is not a fixed and unvarying thing. There is no absolute disinclination to work, to risk or to save. Much work is done for many reasons besides the hope of wages, much saving without the hope of interest, much risking without the hope of profits or other objective gain. There is room here for the "instinct of contrivance," for a squirrel-like impulse to hoard, for the pleasure of skating over thin

ice, or telling *risqué* stories. A study of these will add to our knowledge of what may be called "costless" production or production inside the margin. What are all these non-pecuniary motives? There is a large question here; and if the behaviorists can answer it in detail, they will have made a significant contribution to economics. But if they think that they have built up a complete system and can dispense with all that has gone before, they must be placed in the class with men in other fields, such as chemistry, physics, medicine, or zoölogy, who, because of some new observations, hasten to announce that all previous work is of no account.

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THE REVIEW OF ECONOMIC STATISTICS

The Harvard University Committee on Economic Research will begin in January, 1919, the publication of a review devoted to economic statistics. The Committee has had this project under consideration for nearly two years, and in the fall of 1917 engaged Professor W. M. Persons, of Colorado College, to undertake the study of methods of interpreting current economic statistics. Professor Persons is well known to the scientific world through the various papers he has published upon statistical methods and results, and he will have editorial charge of the new publication, which will appear quarterly. The purpose of the committee is to promote the collection, criticism, and interpretation of economic statistics, with a view to making them more accurate and valuable than they are at present for both business and scientific purposes. This, it believes, can be done by more thoro investigation of the sources and accuracy of statistical data, and by developing the application to economic statistics of modern methods of statistical analysis, which have hitherto been utilized more extensively in other sciences than in economics.

It is the hope of the committee that the proposed publication will, in due time, provide a more accurate record of economic phenomena than is now available, and will also supply a method of interpreting current statistics which will make them more useful and significant than they are today. Since many new scientific and technical problems will necessarily be encountered, the 1919 issues will be treated as a preliminary volume, and will not constitute the first volume of a permanent series. The review will be published in connection with a statistical service which the Committee on Economic Research proposes to establish. The cost of the undertaking precludes ordinary publication arrangements, and, therefore, the review will be supplied only in connection with the statistical service which is offered for the year 1919 to all who may desire to become subscribers at the price of $100 per subscription. Besides the review, it is expected that statistical service will include, after April or May, a monthly bulletin supplementing the quarterly publication. Since the purpose of the enterprise is primarily scientific, the quarterly publication will be supplied, without charge, to a limited number of university libraries and to scientific investigators particularly interested in the problems with which it will deal.

The Committee on Economic Research consists of Charles J. Bullock, Chairman, Charles F. Adams, Nicholas Biddle, Frederic H. Curtiss, Wallace B. Donham, Edwin F. Gay, Ogden L. Mills, Eugene V. R. Thayer.

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